

CHAPTER 3
Maintenance Concepts, Programs and Processes, Maintenance Unit
Department, Division Organization, Manpower Management,
and Aviation Officers

Table of Contents

3.1 Maintenance Concepts	1
3.1.1 Introduction	1
3.1.1.1 O-Level Maintenance	1
3.1.1.2 I-Level Maintenance	2
3.1.1.3 D-Level Maintenance	2
3.1.2 Maintenance Types	3
3.1.3 Maintenance Functions	3
3.1.4 Assignment of Maintenance Responsibility.....	5
3.1.4.1 General	5
3.1.4.2 Shore (Field) Activities	5
3.2 Maintenance Programs and Processes.....	6
3.2.1 Naval Aviation Maintenance Program Standard Operating Procedures (NAMPSOPs)	6
3.2.2 Non-NAMPSOP Maintenance Programs.....	6
R} 3.2.2.1 Nondestructive Inspection (NDI) Program	6
3.2.2.2 Explosives Handling Personnel Qualification and Certification Program	14A
3.2.2.3 Aircraft Confined Space Program	14B
3.2.2.4 Unmanned Aerial Vehicle (UAV) Program.....	14B
3.2.2.5 Aircraft Battle Damage Repair (ABDR)	15
3.2.2.6 Aircraft Maintenance Material Readiness List (AMMRL) Program	16
3.2.2.7 Configuration Management (CM) Program	26
R} 3.2.2.8 Weight and Balance (W&B) Program	30
3.2.2.9 Gas Turbine Engine Maintenance Program	32
3.2.2.10 Auxiliary Power Unit (APU) Management and Support Equipment Gas Turbine Engine (SEGTE) Management.....	37
R} 3.2.2.11 Interservice Support Program.....	38
3.2.2.12 Fleet Air Introduction Liaison Survival Aircrew Flight Equipment (FAILSAFE) Program	38
3.2.2.13 Naval Ordnance Maintenance Management Program (NOMMP)	38
3.2.2.14 Laser Hazard Control Program	39
3.2.2.15 Warranty Program.....	39

3.2.2.16 Mobile Facility (MF) Program.....	40
3.2.2.17 Fleet Readiness Center (FRC) Customer Liaison Program.....	41
3.2.2.18 Reliability Centered Maintenance (RCM) Program.....	43
3.2.2.19 Service Life Management Programs	43
3.2.2.20 Taxi/Turnup/Auxiliary Power Unit (APU) Licensing Program.....	46
3.2.2.21 Aeronautical Equipment Welders Program.....	47
R} 3.2.2.22 Vibration Analysis Program.....	48
3.2.2.23 Marine Air Traffic Control and Landing Systems (MATCALs) Program.....	48
3.2.2.24 Expeditionary Airfield (EAF) Program	48
3.2.2.25 Planner and Estimator (P&E) Services Program.....	49
A} 3.2.2.26 Global Test Facilities (non-GTETS).....	50
3.2.3 Non-NAMPSOP Maintenance Processes	50
R} 3.2.3.1 Aircraft and Support Equipment (SE) Painting.....	50A
3.2.3.2 Preservation.....	53
3.2.3.3 Recovery and Reclamation of Crash Damaged Aircraft	54
3.2.3.4 Emergency Reclamation	55
3.2.3.5 Management Information Systems (MIS).....	55
3.2.3.6 Management of Permitted Radioactive Commodities on Naval Aircraft	58
3.3 Maintenance Department, Division, and Unit Organization	59
3.3.1 Objectives of Standard Organization	59
3.3.2 Organization, Responsibilities, and Functions of Intermediate Maintenance Activities (IMAs)	60
3.3.3 Functions for Intermediate Maintenance Activities (IMAs) (Afloat)	60
R} 3.3.4 Planning Maintenance.....	61
3.3.5 Organization, Responsibilities, and Functions of Navy and Marine Corps Air Reserve Activities	61
3.4 Manpower Management	61
3.4.1 Manpower Control/Manage to Payroll.....	61
3.4.2 Manpower Utilization	62
3.4.3 Labor, Direct and Indirect.....	62
3.4.4 Methods and Standards	62
3.4.5 Position Management and Classification	63
3.4.6 Training.....	64
3.5 Aviation Officers	64
3.5.1 Commanding Officer (CO) Duties and Responsibilities.....	64
3.5.2 Maintenance Officer (MO) and Assistant Maintenance Officer (AMO) Qualifications	66
R} 3.5.3 Maintenance Officer (MO) Duties and Responsibilities.....	69

3.5.4 Assistant Maintenance Officer (AMO) Duties and Responsibilities	72
R} 3.5.5 Maintenance Material Control Officer (MMCO) Duties and Responsibilities	74
3.5.6 Material Control Officer Duties and Responsibilities	77A
3.5.7 Division/Branch Officer Duties and Responsibilities	80
R} 3.5.8 Maintenance Department Officer Training Requirements	81
3.5.9 AIRSpeed Officer	82
A} 3.5.10 Maintenance Master Chief Petty Officer (MMCPO)	84
Figure 3-1: O-Level and I-Level/FRC Maintenance Functions Applicable to Aircraft Systems and Components	85
Figure 3-2: O-Level and I- Level/FRC Maintenance Functions Applicable to Aircraft Systems and Components (continued)	86
Figure 3-3: O-Level and I- Level/FRC Maintenance Functions Applicable to Power Plant Systems and Propeller/Rotary Wing Dynamic Drive Systems and Components	87
Figure 3-4: O-Level and I-Level/FRC Maintenance Function Applicability	88
Figure 3-5: O-Level and I-Level/FRC Maintenance Function Applicability (continued)	89
Figure 3-6: Assigned Levels of Maintenance by Activity, Navy	90
Figure 3-7: Assigned Levels of Maintenance, Non-Fleet Marine Forces Activity, Marine Corps	91
Figure 3-8: Assigned Levels of Maintenance, Aviation Ships	92
Figure 3-9: Assigned Levels of Maintenance, Fleet and Squadron Units, Navy	93
Figure 3-10: Assigned Levels of Maintenance, Aviation Fleet Marine Forces	94
Figure 3-11: Assigned Levels of Maintenance, Naval Air Training and Marine Air Reserve Squadrons and Units	95
Figure 3-12: Assigned Levels of Maintenance, Special Activities and Units	96
Figure 3-13: NDI Certification Record (OPNAV 4790/139)	97
Figure 3-14: NDI Technician/Operator Work Record (OPNAV 4790/140)	98
Figure 3-15: Planner and Estimator Request Format	99
Figure 3-16: Support Equipment Transaction Report (OPNAV 4790/64)	100
Figure 3-17: Support Equipment Transaction Report Explanation	101
Figure 3-18: Screening Procedures for Non-RFI Engines, APUs, and SEGTEs	102
Figure 3-19: Mobile Facility Logbook and Inventory Record - General Instructions (OPNAV 4790/62)	103
Figure 3-20: Mobile Facility Major Related Equipment Records - Table of Contents, Part I (OPNAV 4790/63)	104
Figure 3-21: Mobile Facility Inventory Records - Table of Contents, Part II (OPNAV 4790/74)	105
Figure 3-22: Mobile Facility Inventory Record - Equipment List (OPNAV 4790/73A)	106

Figure 3-23: Mobile Facility Record of Shortages (OPNAV 4790/75A)	107
Figure 3-24: Work Request Customer Service (OPNAV 4790/36A)	108
Figure 3-25: Taxi/Turnup/APU License (OPNAV 4790/162).....	109
Figure 3-26: O-Level Maintenance Department Line and Staff Relationships (Navy)	110
Figure 3-27: O-Level Maintenance Department Line and Staff Relationships (Marine Corps).....	111
Figure 3-28: O-Level Autonomous Maintenance Unit Concept Line and Staff Relationships	112
Figure 3-29: OMD Line and Staff Relationships with Four or Less Aircraft	113
Figure 3-30: O-Level Maintenance Department Organization (EAF)	114
Figure 3-31: IMA/FRC Site Organization (Ashore)	115
Figure 3-32: I-Level Maintenance Department Organization (Afloat)	116
R} Figure 3-33: I-Level Maintenance Department Organization (Marine Corps)	117
Figure 3-34: O-Level Marine Air Traffic Control Detachment Organization	118

CHAPTER 3
Maintenance Concepts, Programs and Processes, Maintenance Unit
Department, Division Organization, Manpower Management,
and Aviation Officers

3.1 Maintenance Concepts

3.1.1 Introduction

- a. The NAMP, implemented through COMNAVAIRFOR, supports the CNO and the CMC readiness and safety objectives and provides for optimum use of manpower, facilities, material, and funds.
- b. The NAMP is founded upon the three-level maintenance concept and is the authority governing management of O-level, I-level, and D-level aviation maintenance. It provides the management tools required for efficient and economical use of personnel and material resources in performing maintenance. It also provides the basis for establishing standard organizations, procedures, and responsibilities for the accomplishment of all maintenance on naval aircraft, associated material, and equipment.
- c. The division of maintenance into three levels allows management to:
 - (1) Classify maintenance functions by levels.
 - (2) Assign responsibility for maintenance functions to a specific level.
 - (3) Assign maintenance tasks consistent with the complexity, depth, scope, and range of work to be performed.
 - (4) Accomplish any particular maintenance task or support service at a level which ensures optimum economic use of resources.
 - (5) Collect, analyze, and use data to assist all levels of NAMP management.

3.1.1.1 O-Level Maintenance

3.1.1.1.1 O-level maintenance is performed by an operating unit on a day-to-day basis in support of its own operations. The O-level maintenance mission is to maintain assigned aircraft and aeronautical equipment in a full mission capable status while continually improving the local maintenance process. While O-level maintenance may be done by IMA/COMFRC activities, O-level maintenance is usually accomplished by maintenance personnel assigned to aircraft reporting custodians.

3.1.1.1.2 O-level maintenance functions generally can be grouped under the categories of:

- a. Inspections.
- b. Servicing.
- c. Handling.
- d. On-equipment corrective and preventive maintenance. (This includes on-equipment repair, removal, and replacement of defective components.)
- e. Incorporation of TDs, less SE, within prescribed limitations.

- f. Record keeping and reports preparation.
- g. AE of aircraft and equipment under RCM.

3.1.1.2 I-Level Maintenance

3.1.1.2.1 The I-level maintenance mission is to enhance and sustain the combat readiness and mission capability of supported activities by providing quality and timely material support at the nearest location with the lowest practical resource expenditure.

3.1.1.2.2 I-level maintenance consists of on and off equipment material support and may be grouped as follows:

- a. Performance of maintenance on aeronautical components and related SE.
- b. FCAs which perform I-level calibration of designated equipment.
- c. Processing aircraft components from stricken aircraft.
- d. Providing technical assistance to supported units.
- e. Incorporation of TDs.
- f. Manufacture of selected aeronautical components, liquids, and gases.
- g. Performance of on-aircraft maintenance when required.
- h. AE of aircraft and equipment under RCM.

3.1.1.3 D-Level Maintenance

3.1.1.3.1 D-level maintenance is performed at or by FRC sites to ensure continued flying integrity of airframes and flight systems during subsequent operational service periods. D-level maintenance is also performed on material requiring major overhaul or rebuilding of parts, assemblies, subassemblies, and end items. It includes manufacturing parts, modifying, testing, inspecting, sampling, and reclaiming. FRC sites support O-level and I-level maintenance by providing engineering assistance and performing maintenance beyond their capabilities.

3.1.1.3.2 D-level maintenance functions provided in this instruction. General functions may be grouped as follows:

- a. Aircraft SDLM (standard and special rework).
- b. Rework and repair of engines, components, and SE.
- c. Calibration by Navy calibration laboratories and NPSLs.
- d. Incorporation of TDs.
- e. Modification of aircraft, engines, and SE.
- f. Manufacture or modification of parts or kits.
- g. Technical and engineering assistance by field teams.

- h. AE of aircraft and equipment under RCM.

3.1.2 Maintenance Types

3.1.2.1 Rework. Rework may be performed on aircraft or equipment. It is performed by industrial type activities assigned the mission, task, or functional responsibility of providing maintenance program support. Rework is performed with military and civilian personnel and managed by COMNAVAIRSYSCOM.

3.1.2.2 Upkeep. Upkeep is performed on aircraft or equipment. It is performed by military activities assigned aircraft, equipment, or the responsibility of providing direct support to such activities. Upkeep is performed by military and contractor personnel and is managed by the ACCs.

NOTE: Rework and upkeep are two types of aircraft maintenance performed within the naval establishment without distinction as to levels of maintenance.

3.1.3 Maintenance Functions

3.1.3.1 This chapter lists the maintenance functions assigned to IMA/COMFRC activities. Assignment of individual maintenance functions to a maintenance level allows the maintenance activities to further determine specific tasks they are required to perform. To determine the extent to which a repair task can be undertaken, the maintenance activity must consult the appropriate MIMs, operating and service instruction manuals, or TDs that pertain to each supported weapon system or component.

3.1.3.1.1 General maintenance functions applicable to aircraft systems and components are listed in [Figures 3-1 and 3-2](#).

3.1.3.1.2 General maintenance functions applicable to power plant systems and components are listed in [Figure 3-3](#).

3.1.3.1.3 General maintenance functions applicable to propeller and rotary wing dynamic drive systems/components are listed in [Figure 3-3](#).

3.1.3.2 Maintenance Level Functions

3.1.3.2.1 Functions assigned herein identify the lowest maintenance level at which a task may be performed. However, a higher level maintenance function may be assigned to support a weapon system or component. Higher levels of maintenance may be assigned lower level functions, for example, turnaround inspections, daily inspections, special inspections, conditional inspections, and phase inspections are applicable to those I-level and D-level activities with aircraft assigned.

3.1.3.2.2 Functional definitions in this chapter are used to identify SE, tools, material, and technical manual data for O-level and I-level maintenance. Although allowance lists for SE, tools, and material reflect the assigned maintenance level, they do not mean all O-level and I-level activities are outfitted with tools and SE to perform these functions. Although a specific function may be assigned to I-level maintenance, it does not mean all I-level activities are outfitted with tools and SE to perform this function. Limited I-level activities may be assigned the responsibility and furnished the resources to perform a specific function for an entire logistic area. Certain tools and equipment required for assigned O-level maintenance functions may be furnished by the supporting activity, station, ship, or MALS for subcustody to O-level. The approved IMRLs are considered the authority for the issue of specific items of SE. The IMRL tailoring process is described in [Chapter 10](#), paragraph 10.17.

3.1.3.2.3 When removal and replacement of components from a weapon system is required using only O-level test equipment and hand tools, the maintenance function is O-level. Limited I-level maintenance functions may be performed at designated O-level activities. COMNAVAIRSYSCOM will assign limited I-

level maintenance responsibility upon recommendation by the cognizant ACC/TYCOM. Only those O-level activities specifically assigned limited I-level functions by COMNAVAIRSYSCOM will perform this maintenance. It will be limited to equipment and components designated by COMNAVAIRSYSCOM based on ACC/TYCOM recommendations.

3.1.3.2.4 Selected D-level maintenance functions may be performed at designated IMAs. Only designated IMAs/COMFRC activities will perform those functions on equipment and components as approved by COMNAVAIRSYSCOM based on ACC/TYCOM recommendations.

3.1.3.3 Airborne Weapon Systems. Maintenance functions and policy for guided missiles, aircraft guns, targets, bomb assemblies, rockets, jet assisted takeoff, and pyrotechnics are listed in OPNAVINST 8000.16.

3.1.3.4 CART, CAD, and PAD. These functions are general and apply regardless of installation, for example, bomb racks, ejection seats, or explosive bolts (Figure 3-4).

3.1.3.5 Support Equipment.

3.1.3.5.1 For the purpose of classifying maintenance functions, SE is defined as all equipment required on the ground to make an aeronautical system, support system, subsystem, or end item of equipment (SE for SE), operational in its intended environment. It is primarily the equipment covered by the AMMRL Program. Equipment, such as drill presses, grinders, lathes, sewing machines, and welders, which are normally used in aeronautical work centers in support of aircraft, components, or SE will be included in this classification.

3.1.3.5.2 SE is categorized as CSE and PSE. CSE and PSE are divided into avionic and nonavionic. Figure 3-4 lists O-level and I-level maintenance function applicability.

3.1.3.5.3 For maintenance functions and policy on AWSE, refer to OPNAVINST 8000.16.

3.1.3.5.4 Maintenance of SE not included in the AMMRL Program but required in certain circumstances to support flight operations or aircraft maintenance, will be supported by the I-level as directed by the ACC/TYCOM. Examples of this equipment are crash and fire fighting equipment, runway sweepers, and fork lift trucks.

3.1.3.5.5 SE installed within a work center, such as hydraulic test stands (A/F 27T-10), oxygen and nitrogen generating plants (LOX-30/PLN-430), and electrical test units (VARIDRIVES), will be maintained and documented by the work center having physical custody.

3.1.3.5.6 Installed jet engine test facility (Class C test cells) maintenance responsibilities are assigned as follows:

a. The structure and basic systems, such as fuel, water, air, and CO2 fire extinguishing systems, shall be maintained by the station Public Works Department (ashore) and Engineering Department (afloat).

b. The control console, engine connector panel, and thrust bed shall be maintained by the work center having physical custody.

3.1.3.5.7 UAV. Assignment and classification of O-level and I-level maintenance functions are applicable to UAVs. All UAV operating activities are designated as O-level with limited I-level capability, because of unique characteristics inherent in UAV design, operation, and life. Maintenance functions are listed in Figure 3-4. For maintenance functions of nonrecoverable UAVs and equipment, refer to OPNAVINST 8000.16.

3.1.3.5.8 AMCM equipment and ALSS maintenance functions are listed in [Figure 3-5](#).

3.1.4 Assignment of Maintenance Responsibility

The CNO and CMC assign aircraft maintenance tasks and responsibilities to activities of naval operating and training forces, FMFs, and nonfleet Marine forces. COMNAVAIRSYSCOM assigns maintenance tasks and responsibilities to shore activities they manage.

3.1.4.1 General

3.1.4.1.1 Designated activities will perform limited D-level maintenance functions for an entire logistic area based on ACC/TYCOM recommendations approved by COMNAVAIRSYSCOM. Specified O-level activities are authorized to perform limited I-level maintenance functions on systems and equipment unique to the assigned mission of the activity. Certain other O-level activities are authorized to perform limited I-level functions in partial support of their own operations. Being the sole user at an activity does not necessarily constitute justification for the assignment of limited I-level or D-level maintenance functions or additional facilities/equipment.

3.1.4.1.2 Navy activities, except aviation training ships and nonaviation ships supporting aircraft, assigned the responsibility for providing or performing I-level support or maintenance will establish an IMA/FRC. In carrying out its maintenance responsibilities, the Weapons Department performs on-equipment maintenance but is authorized to perform I-level maintenance to the limit of its capabilities. For maintenance beyond those limits, the other I-level maintenance members will provide required support within their capabilities. Station activities with assigned aircraft shall, unless specific deviations are authorized, establish an OMD within the Operations Department to perform O-level maintenance.

NOTE: Throughout this instruction, any reference to the Weapons Department will include Weapons Divisions on amphibious assault ships and other commands where a Weapons Division serves the same functions as a Weapons Department.

3.1.4.2 Shore (Field) Activities

3.1.4.2.1 Stations and activities of the shore establishment are assigned responsibility for performing the level of aircraft maintenance designated in [Figure 3-6](#). Shore activities will:

- a. Provide I-level maintenance in support of station aircraft, tenant squadrons, and units.
- b. Provide O-level maintenance facilities for tenant activities.
- c. Provide nonorganic (prepositioned) SE for tenant activities.
- d. Perform O-level maintenance and flight line servicing functions on station and transient aircraft.
- e. Perform transient line operational requirements per this instruction, whether or not aircraft are assigned.

3.1.4.2.2 Marine Corps, Non-FMF Activities. MCASs and air facilities ([Figure 3-7](#)) are responsible for performing the levels of maintenance designated by the Marine Corps Tables of Organization and for providing flight line services for transient aircraft. Also, these stations will provide maintenance facilities and limited nondeployable SE or plant property support for tenant activities.

3.1.4.2.3 Tenant activities are responsible for O-level maintenance of SE assigned on subcustody from the supporting station.

3.1.4.2.4 Maintenance on transient aircraft may be performed within the station's capability.

3.1.4.2.5 Aviation ships are responsible for the levels of maintenance designated in [Figure 3-8](#). Non-aviation ships are not responsible for aircraft maintenance; however, they shall provide required O-level facilities, including all installed equipment. Helicopter detachments perform their own maintenance. Maintenance materials required to support helicopter detachments are provided to the ships by the ACC/TYCOMs.

3.1.4.2.6 Navy squadrons and units are responsible for performing maintenance on assigned aircraft and equipment per [Figure 3-9](#).

3.1.4.2.7 Aviation FMF squadrons are responsible for accomplishing the levels of maintenance shown in [Figure 3-10](#).

3.1.4.2.8 Naval Air Training and Marine Air Reserve squadrons and units are responsible for performing the levels of maintenance shown in [Figure 3-11](#).

3.1.4.2.9 Other special activities and units, for example, Mine Countermeasure Unit, CENNAVAVN-TECHTRA, and TSC assigned aircraft or operating equipment originally designed for use in aircraft, are responsible for performing the level(s) of maintenance shown in [Figure 3-12](#).

3.2 Maintenance Programs and Processes

3.2.1 Naval Aviation Maintenance Program Standard Operating Procedures (NAMPSOPs)

a. NAMPSOP maintenance programs are intended to be implemented using this instruction and specific program related technical manuals which are identified within the program text. Generation of supplemental instructions below the COMNAVAIRSYSCOM level (with the exception of Local Command Procedures ([Appendix D](#))) to augment these policy management documents are not authorized.

b. NAMPSOP maintenance programs are detailed in [Chapter 10](#).

3.2.2 Non-NAMPSOP Maintenance Programs

a. Non-NAMPSOP maintenance programs addressed in this chapter are intended to be implemented using this instruction and specific program related technical manuals which are identified within the program text. Generation of supplemental instructions below ACC/TYCOM/Wing/MAG level to augment these policy management documents are not authorized.

b. All letters of designation, qualification, certification, course completion, medical certification, and completed maintenance related PQS shall be filed in the individual's qualification/certification record.

3.2.2.1 R} Nondestructive Inspection (NDI) Program

3.2.2.1.1 During inspection of aircraft, it is essential that defects are detected and corrected before they reach catastrophic proportions. NDI can detect defects with a high degree of accuracy and with no adverse affect upon the use of the part or system being inspected. The effective application of NDI has resulted in increased operational safety and in many instances, dramatically reduced maintenance man-hours and material expenditures.

3.2.2.1.2 NDI is the practice of evaluating a part or sample of material without impairing its future usefulness. Basic NDI methods include, but are not limited to, fluorescent, penetrant, magnetic particle, eddy current, ultrasonic, and radiographic. NDI Program success depends heavily upon training, sustained

proficiency, intelligent application, discriminating interpretation of results, and the availability of the necessary tools.

3.2.2.1.3 NDI is of vital concern at all levels of maintenance. All operational and support commanders shall direct their efforts toward its proper use. NDI shall be used in the maintenance of Navy and Marine Corps aircraft and aircraft systems wherever contributions to safety, reliability, QA, performance, or economy can be realized.

3.2.2.1.4 NDI shall only be performed by certified NDI personnel using NAVAIR 01-1A-16, NAVAIR 01-1A-16-2, applicable TDs, and technical publications. NDI has proven to be a valuable maintenance tool:

- a. Where internal defects cannot be detected visually.
- b. Where structural or component disassembly can be avoided.
- c. For QA in the detection of substandard materials or conditions.
- d. As an input for changes to, and to prove the validity of, periodic maintenance requirements.

NOTES: 1. The terms qualified, certified, or proficient do not precede any instance of NDI Instructor, NDI Specialist, NDI Technician, or NDI Operator within the NDI Program text. When these personnel are listed within this text, it denotes qualified, certified, or proficient.

2. NDI Instructor, Specialist, Technician, and Operator training and certification shall be per this chapter.

3. FRC NDI personnel shall be certified per [Chapter 6](#).

4. Contractor NDI personnel shall be certified per NAS 410 unless otherwise stated within specific contract stipulations.

5. Unique operational locations may preclude IMA/FRC NDI support. In such instances, Army certified NDI personnel per TM 1-1500-335-23 and Air Force certified NDI personnel per T.O. 33B-1-1, may provide NDI services. When necessary, the MO may grant authorization for Army and Air Force NDI services. All NDIs performed must be per the applicable TD/technical publication and supervised by a QAR.

6. Army and Air Force NDI personnel are not authorized to provide refresher training, method-specific training, task-specific hands on training, supervised work experience, certification or triennial 3-year recertification of NDI technicians, or certification or annual recertification of NDI operators.

3.2.2.1.5 Responsibilities

3.2.2.1.5.1 COMNAVAIRSYSCOM (AIR-4.3.4.3) has overall cognizance of the NDI Program and is responsible for managing a program of research, development, training, and application of NDI techniques and equipment. NAVAIRINST 13070.1 assigns the responsibilities within COMNAVAIRYSYSCOM for the various elements of the NDI Program. COMNAVAIRSYSCOM (AIR-4.3.4.3) shall:

- a. Coordinate and issue information on NDI within naval aviation, other services, and industry (as appropriate).
- b. Review NDI technical publications and update publications as newer techniques and applications are developed.
- c. Establish NDI standards and specifications.

3.2.2.1.5.2 ACCs/TYCOMs shall:

- a. Monitor the NDI Program in activities under their cognizance.
- b. Advise on availability and location of NDI training.
- c. Maintain liaison with COMNAVAIRSYSCOM, FRCs, and fleet activities on NDI matters.
- d. Ensure NDI laboratories, equipment, and personnel are audited (as required).
- e. Designate NDI specialists.
- f. Assign an NDI Program Manager.

3.2.2.1.5.3 IMAs/FRCs shall:

- a. Ensure compliance with qualification requirements and safety precautions.
- b. Ensure industrial radiation safety requirements are strictly enforced per NAVSEA S0420-AA-RAD-010.
- c. Use available NDI equipment fully and develop new procedures and applications, as far as practical, to provide labor, material, and cost savings.
- d. Maintain an adequate number of NDI technicians at all times to provide NDI services to supported organizations and transient aircraft hosted maintenance.
- e. Ensure the NDI equipment and laboratory spaces are continuously ready for use. This includes availability of required consumable items.
- f. Establish and maintain a continuing training program, to be verified during Type Wing and ACC/TYCOM audits, within the NDI Branch to provide supervised work experience to new NDI technicians and a mechanism for all NDI technicians to become proficient with newly developed NDI techniques, applications, and SE.
- g. Establish and maintain liaison with the cognizant ACC/TYCOM designated NDI Specialist and request assistance, via the chain of command, on all NDI deficiencies (as required).
- h. Provide and maintain industrial X-ray film processing facilities, both ashore and afloat (as applicable).
- i. Establish and maintain liaison with the designated Radiation Safety Officer.
- j. Provide NDI technician representation to the annual COMNAVAIRSYSCOM NDI Working Group meeting for training and communication between COMNAVAIRSYSCOM, ACC/TYCOMs, NDI support equipment managers, NDI instructors, Navy Personnel Command NDI detailers, and other services.

NOTE: NDI MAFs/WOs shall have the inspected block signed by a CDI, CDQAR, or QAR to establish accountability for tools, IMRL equipment, accessories, and consumables used when performing NDI functions.

3.2.2.1.5.4 O-level activities shall:

- a. Request IMA/ FRC NDI support (as required).

- b. Obtain IMA/FRC NDI services in all situations where NDI results are suspect.
- c. Inform the IMA/FRC, in advance, of scheduled NDI requirements. Include these requirements in the MMP.
- d. Assign NDI technicians, NEC 7225, or MOS 6033 TAD to the supporting IMA/FRC to maintain their proficiency and to augment IMA/FRC NDI capabilities, except in unique deployment situations where no IMA/FRC exists.
- e. Ensure NDI equipment is continuously ready for use. This includes availability of required consumable items.

3.2.2.1.6 The Naval Aircraft NDI Technician school at NATTC, Pensacola, FL, provides initial NDI Technician training (Course C-603-3191) for military (all branches) and civilian personnel. Navy aviation structure mechanics and Marine Corps structures mechanics, of grade E-4 and above, and civilian personnel are eligible to attend the course. Information pertaining to curriculum information, course prerequisites, obligated service requirements, quota requests, and convening dates are in NAVEDTRA 10500 and on the CANTRAC web site (<https://cetarsweb.cnet.navy.mil>).

NOTE: Marine Corps activities send requests for training to the cognizant CGMAW.

3.2.2.1.7 The FRC NDI Recertification course (Course N-701-0005) is conducted at FRC East, Cherry Point NC; FRC SE, Jacksonville FL; FRC SW, San Diego CA; and FRC MA, Oceana VA. Information pertaining to curriculum, course prerequisites, quota requests, and convening dates can be found on the CANTRAC web site (<https://cetarsweb.cnet.navy.mil>).

3.2.2.1.8 The FRC NDI Specific Task course (Course N-701-0006) is available on a limited basis at FRC East, Cherry Point, NC; FRC SE, Jacksonville, FL; and FRC SW, San Diego, CA, to meet fleet requests for platform specific NDI training. The course will also be scheduled (as required) to provide training on newly acquisitioned NDI equipment introduced/implemented into fleet activities. Fleet personnel should contact the Quota Control Manager at the FRCs as listed on the CANTRAC web site (<https://cetarsweb.cnet.navy.mil>) to request scheduling information and quotas.

NOTE: In the event emergency scheduling requirements cannot be satisfied within the requester's chain of command, COMNAVAIRSYSCOM (AIR-6.7.5.2) should be contacted for assistance.

3.2.2.1.9 The following documents contain information pertinent to the NDI training program:

- a. NAVEDTRA 10500.
- b. NAVAIR 01-1A-16.
- c. NAVAIR 01-1A-16-2.
- d. NAVAIRINST 1500.2.
- e. NAVSEA S0420-AA-RAD-010.
- f. NAVMED P-5055.
- g. NAS 410 (contractor).

3.2.2.1.10 NDI Records

3.2.2.1.10.1 The NDI Certification Record (OPNAV 4790/139) (Figure 3-13) provides a record of certification and recertification of NDI technicians and operators. Certifying officials at the Naval Aircraft NDI Technician School and the FRCs shall be designated in writing by the CO/OINC, or by their designated representative. The Naval Aircraft NDI Technician school and FRCs shall retain records of training materials used, tests given, and individual test scores for a minimum of 3 years.

3.2.2.1.10.2 NDI technicians and operators shall use the NDI Technician/Operator Work Record (OPNAV 4790/140) (Figure 3-14) to record all NDI tasks, supervised work experience, and trial practice applications performed. Entries shall be verified by the NDI Instructor, NDI Specialist, Work Center Supervisor, a CDQAR or QAR, or an NDI Technician (as applicable). Self-verification is not authorized. Personnel performing repetitive NDI tasks, such as eddy current on aircraft wheels, may record weekly entries.

3.2.2.1.10.3 All NDI technicians and operators shall maintain an NDI Technician/Operator Log that details all NDI tasks performed. The log shall consist of two sections and, as a minimum, include the following:

<u>Left side</u>	Original certification record (OPNAV 4790/139) Current NDI method(s) recertification record (OPNAV 4790/139) Copy of current physical (exam or assessment) Copy of current eye exam Original JQR indicating successful completion of initial training requirements.
<u>Right Side</u>	NDI Technician/Operator Work Record (OPNAV 4790/140). (This shall be retained in the log for the period of certification or until recertification.)

NOTE: In compliance with the Privacy Act, a signed and dated Stressor Sheet may be used in lieu of a copy of the physical exam.

3.2.2.1.10.3.1 The Work Center Supervisor or designated alternate shall retain copies of NDI Technician/Operator Log to verify that NDI technician/operators under his/her cognizance have maintained proficiency. All purged items shall be given to the individual.

3.2.2.1.10.3.2 The NDI Technician/Operator Log shall accompany the NDI Technician/Operator during periods of TAD.

3.2.2.1.10.3.3 Upon transfer, the individual carries the NDI Technician/Operator Log to their next activity and work center copies shall be given to the individual for personal retention.

3.2.2.1.11 NDI personnel and their responsibilities are identified as follows:

a. NDI instructors are military or civilian personnel who have completed Instructional Delivery Continuum Journeyman Instructor Training course (Course A-012-0077) or equivalent. NDI instructors are authorized to provide refresher training, method-specific training, task-specific hands on training, and supervised work experience. NDI instructors shall be one of the following:

- (1) Naval Aircraft NDI school Instructor.
- (2) FRC NDI Instructor.
- (3) NATEC NDI Specialist.

b. NDI specialists are military or civilian personnel and are authorized to provide refresher training, method-specific training, task-specific hands on training, supervised work experience, triennial 3-year recertification of NDI technicians, and technical support in the research and implementation of developing or improving NDI technologies.

NOTE: NDI specialists shall be designated by the ACC/TYCOM.

- (1) NDI specialists are authorized to train, certify, and recertify NDI operators.
- (2) Minimum qualifications for NDI specialists are as follows:
 - (a) Senior enlisted (E7 or above) or civil service (minimum WG-11/GS-09).
 - (b) An NDI technician in all five basic NDI methods with at least two recertifications in all five basic NDI methods.
 - (c) Fully developed in technical skills and knowledge with aircraft maintenance experience on multiple T/M/S.
 - (d) Able to research, read, and interpret drawings, technical publications, and directives.
 - (e) Capable of developing techniques, interpreting specifications/standards, and specifying the inspection method/technique to be used.
 - (f) Able to write with clarity and technical accuracy.
 - (g) Possess a high level of maturity and demonstrate superior performance of assigned duties.
 - (h) Be observant, alert, have an inquiring mind, and ability to work well with others.
 - (i) Motivated, having a strong personal desire for increased responsibility and for developing greater technical knowledge in their specialty.

c. NDI technicians are Navy aviation structural mechanics and Marine Corps structures mechanics, of grade E-4 and above, who have successfully completed NDI Technician Training course (Course C-603-3191). NDI technicians, normally attached to an IMA/FRC, are assigned NEC 7225 or MOS 6033 and may be certified to perform fluorescent, penetrant, magnetic particle, eddy current, ultrasonic, and radiographic NDI methods. Recertification of each NDI method is required every 3 years. Early recertification is authorized and encouraged to prevent expiration of certification(s) during tours of deployed duty. Current certification of NDI technicians regularly engaged in all NDI methods may be extended by the ACC/TYCOM for up to 1 year if circumstances warrant. An IMA/FRC shall request adjustments to NDI technician staffing levels to address long-term inability to meet NDI requirements placed upon the activity. When NDI instructor or NDI specialist support is not available or impractical to train and certify NDI operators, NDI technicians with 3 or more years of experience, and at least 1 recertification that perform NDI on a regular basis may be authorized by the ACC/TYCOM to train and certify NDI operators as follows:

NOTE: ACC/TYCOM may waive the 3-year experience requirement if circumstances necessitate.

- (1) NDI technicians may be authorized to certify NDI operators in penetrant (Type I, Method C), magnetic particle, and eddy current NDI tasks applicable to the prospective NDI operator's T/M/S. Locally prepared course materials tailored to the specific NDI task may be authorized if training materials from NDI instructors cannot be acquired in a timely manner.

(2) Requests for authorization shall be addressed to the cognizant ACC/TYCOM via the Type Wing and shall include the NDI technician's current qualifications, experience history, and the specific TD/technical publication directed NDI task(s) for which NDI operator training and certification is to be provided. If approved, a copy of the ACC/TYCOM authorization shall be attached to the NDI Technician's NDI Certification Record (OPNAV 4790/139). NDI operator training and certification authorization is restricted to the specific NDI task(s) for which the NDI Technician was approved and shall be reviewed annually by QA for continued need of the authorization. If the original extenuating circumstances are resolved, the cognizant ACC/TYCOM shall be contacted for direction. Authorization shall remain in effect only as long as NDI certification and proficiency are maintained.

d. NDI operators are Navy and Marine Corps personnel, of grade E-4 and above, who have successfully completed required training and may be certified to perform limited NDI tasks. NDI operators, normally attached to O-level activities, shall only perform TD/technical publication directed NDI tasks and evaluate the results on specific aeronautical parts, assemblies, or structural features. NDI operators can only be authorized to perform penetrant (Type I, Method C), magnetic particle, or eddy current NDI tasks. Authorization shall be specifically granted by the ACC/TYCOM via the Type Wing. Such authorization is normally granted only when activities must operate without IMA/FRC support due to operational locations and as a temporary solution to a short-term NDI technician shortage or workload surge. NDI operator task-specific training, task-specific hands on training, and supervised work experience is normally provided by NDI specialists. NDI operators shall seek technical assistance from IMA/FRC NDI technicians when necessary. Recertification of each NDI method for each NDI task is required annually. Additional NDI operator requirements are as follows:

(1) Written cognizant ISSC concurrence is required before any specific eddy current NDI procedure can be authorized to be performed by an NDI Operator. ISSC concurrence of the individual NDI Operator is not required.

(2) Method-specific NDI training shall be provided to all NDI operators by NDI specialists or TYCOM authorized NDI technicians. This training is required in the following minimum amounts: PT = 4 hours, MT = 4 hours, and ET = 10 hours.

(3) Task-specific hands on training shall be provided to all NDI operators by NDI specialists or TYCOM authorized NDI technicians. Task-specific hands on training shall include, as a minimum:

(a) Familiarization with all required equipment.

(b) Process control procedures.

(c) Application of the specific inspection procedure per the applicable TD/technical publication NDI task.

(d) Task-specific training shall be provided in an amount that will vary with complexity of the TD/technical publication directed NDI tasks, but shall not be less than 4 hours for the first aeronautical part, assembly, or structural feature listed.

(e) Task-specific training for each additional aeronautical part, assembly, or structural feature listed shall be determined by the NDI Instructor or Specialist, but shall not be less than 2 hours.

(4) Supervised work experience shall be provided to all NDI operators by NDI specialists or NDI technicians. Supervised work experience, before the NDI Operator can perform inspections without direct supervision, shall include, as a minimum:

(a) PT = 16 hours, MT = 16 hours, and ET = 40 hours for the first aeronautical part, assembly, or structural feature listed in the applicable TD/technical publication directed NDI task and method.

(b) Training for each additional aeronautical part, assembly, or structural feature listed in each task shall require supervised work experience in the following minimum amounts: PT = 4 hours, MT = 4 hours, and ET = 10 hours.

(c) Additional supervised work experience may be required at the discretion of the NDI specialist or NDI technician.

(5) NDI operators shall be closely monitored by NDI technicians and by cognizant QARs or CDQARs. NDI operators are not authorized to operate ultrasonic or radiographic equipment. They may, however, assist NDI technicians operating this equipment.

3.2.2.1.12 NDI technicians and operators must maintain proficiency by performing the NDI method(s) for which they are certified at least twice each month, as evidenced by entries on their NDI Technician/Operator Work Record (OPNAV 4790/140). This can be accomplished either through normal workload or by performing trial practice applications.

3.2.2.1.12.1 NDI technicians must maintain X-ray proficiency by performing radiographic images at least twice each month. If normal workload does not facilitate meeting this requirement, proficiency shall be maintained by performing X-rays on two substantially different parts that are representative of typical aircraft-related X-ray requirements (kilovolt, geometric complexity, and orientation). The inspections may be performed in immediate succession, provided the NDI Technician/Operator Work Record (OPNAV 4790/140) reflects each application.

3.2.2.1.12.1.1 If the activity is authorized to perform open facility X-ray, at least one proficiency radiographic image must be performed as an open facility radiographic image every 3 months. Shipboard activities may omit activating the X-ray tube when performing open facility radiographic images for the purpose of maintaining proficiency.

3.2.2.1.12.1.2 Every NDI technician shall complete these requirements while functioning as the radiographer-in-charge (lead radiographer). This requirement is intended to refresh both the NDI Technician's radiation safety practices and ability to produce high quality radiographs on short notice.

3.2.2.1.12.1.3 NDI technicians stationed at IMA/FRC NDI laboratories without X-ray capabilities are encouraged to maintain their proficiency (if possible) by performing monthly applications at a nearby IMA/FRC activity. If not practical, an X-ray NDI method proficiency waiver shall be requested through COMNAVAIRFOR.

3.2.2.1.12.2 NDI technicians failing to maintain monthly proficiency may not perform any NDI in that method until proficiency is re-established and shall have their certification suspended.

3.2.2.1.12.2.1 NDI technicians with proficiency lapses up to 12 consecutive months may regain their certification by making trial practice applications under the supervision of an NDI Technician who shall initial NDI Technician/Operator Work Record (OPNAV 4790/140) upon determination of proficiency.

3.2.2.1.12.2.2 NDI technicians with proficiency lapses exceeding 12 consecutive months, but less than 3 years, require refresher training that must be administered by a FRC or NDI specialist to re-establish certification.

3.2.2.1.12.2.3 NDI technicians who fail to maintain proficiency for 3 years or more, fail to pass NDI specialist triennial 3-year NDI recertification, or who currently possess an approved COMNAVAIRFOR X-

ray NDI method waiver, are required to attend the FRC NDI Recertification course (Course N-701-0005) to obtain recertification.

3.2.2.1.12.3 NDI operators failing to maintain monthly proficiency may not perform any NDI in that method until proficiency is re-established and shall have their certification suspended.

3.2.2.1.12.3.1 NDI operators with proficiency lapses up to 6 consecutive months may regain their certification by making trial practice applications under the supervision of an NDI Technician who shall initial NDI Technician/Operator Work Record (OPNAV 4790/140) upon determination of proficiency.

3.2.2.1.12.3.2 NDI operators who fail to maintain proficiency for over 6 consecutive months shall have their certification revoked and documented on the NDI Technician/Operator Work Record (OPNAV 4790/140) by the cognizant QAO.

3.2.2.1.12.3.3 NDI operators with revoked certifications must repeat all initial training and certification requirements to regain certification.

NOTE: Reinstatement of a revoked NDI certification is not authorized.

3.2.2.1.13 Newly certified NDI technicians shall require at least 3 months of supervised work experience before assignment at an activity without any experienced NDI technicians. Whenever possible, newly certified NDI technicians shall be assigned to a fleet-concentrated IMA/FRC where the new NDI Technician can acquire supervised work experience under at least one experienced NDI Technician. Requirements are as follows:

NOTE: An experienced NDI Technician has 3 or more years NDI experience and at least 1 recertification.

a. If the newly certified NDI Technician cannot be assigned to an activity with an experienced NDI Technician, the newly certified NDI Technician shall be sent by the gaining activity to an IMA/FRC en route to the activity for a minimum of 3 months to fulfill supervised work experience requirements. If the gaining activity cannot fulfill this requirement, a naval message must be sent to the ACC/TYCOM describing inability to comply, requesting assistance or relief from this requirement. This requirement may be tailored or waived by the ACC/TYCOM when the situation warrants.

b. Activities providing supervised work experience shall use a mentoring program. This program shall be designed to team the new NDI Technician with an experienced NDI Technician(s). The experienced NDI Technician shall record the new NDI Technician's training using a JQR. The JQR, provided by the COMNAVAIRFOR NDI Program Manager, is designed to expose the new NDI Technician to all NDI methods, process controls, and specific applications that the new NDI Technician will need to perform after completing the mentoring program.

c. Transferring activities shall be responsible for sending NDI technicians to an NDI recertification course if NDI certification in any method has already expired or will expire within 3 months of the NDI Technician's transfer date. This also applies to activities with no X-ray capabilities and the NDI Technician has a COMNAVAIRFOR X-ray NDI method proficiency waiver of 3 years or more.

3.2.2.1.14 With the exception of the Naval Aircraft NDI school, activities authorized to certify and recertify NDI technicians and operators shall administer COMNAVAIRFOR approved written theoretical and practical tests on the NDI methods involved. Personnel being certified or recertified shall also be required to demonstrate the ability to perform NDI (as appropriate). The objective is to provide sufficient testing of the candidate to ensure the person is competent to conduct NDIs.

3.2.2.1.15 Prior to selecting candidates for NDI Technician or NDI Operator training, and annually thereafter, an eye examination by the medical department is required to ensure natural or corrected vision conforms to the following minimums:

- a. At least one eye capable of passing Armed Forces vision tester 20/25 or Jaeger #2 at 12 inches.
- b. Color perception - ability to pass Falant test.

3.2.2.1.16 Periodic inspections and maintenance of NDI equipment shall be performed per schedules and procedures within applicable Navy technical manuals (including Operation and Intermediate Maintenance Manuals, Pre-operational Checklists, and MRCs) and directives applicable to the assigned equipment. The following procedures apply:

a. NDI equipment components (repairables and consumables) are stocked in the supply system. Activities may requisition items using standard MILSTRIP requisitioning procedures.

b. Repair of NDI equipment not considered within the capability of the IMA/FRC will be per NAVAIRINST 13680.1. Rework facilities are available for repairs deemed BCM by the IMA/FRC. To request rework, an activity's IMRL manager (or equivalent) shall contact their SECA. The SECA will then pass the requirement to SEFAC for scheduling.

c. Maintenance, repair, and calibration of radiographic equipment will be per NAVSEA S0420-AA-RAD-010 and NAVSEA SE700-AA-MAN-100.

3.2.2.1.17 X-ray radiation, operating, and safety precautions are the responsibility of the CO. Refer to NAVSEA S0420-AA-RAD-010 for these responsibilities.

3.2.2.2 Explosives Handling Personnel Qualification and Certification Program

3.2.2.2.1 Improper handling, loading, processing, disposal, demilitarization, or testing of explosive devices has resulted in many mishaps with injuries, loss of life, damage amounting to millions of dollars, and reduced operational effectiveness. The purpose of this program is to eliminate these mishaps through proper qualification and certification of personnel. OPNAVINST 8020.14 and OPNAVINST 8023.24 provide additional details.

3.2.2.2.2 All personnel handling cartridges, CADs, pyrotechnics, and PADs fall under the Explosives Handling Personnel Qualification and Certification Program. The CO or OINC will designate, in writing, the Ordnance Certification Board for PRs and AMEs. There is no requirement to have ordnance personnel on the board. The ALSS Division Officer will ensure handling, storage, and shipping of cartridges and sealed-in CADs are per general safety precautions contained in NAVSEA OP 4, OP 5 VOL I, NAVAIR 11-100-1.1-CD, NAVAIR 13-1-6.1-1, and NAVAIR 13-1-6.1-2. CADs/PADs turned into station weapons department/MALS shall be packed and labeled per current directives.

3.2.2.2.3 For information concerning Hazards of Electromagnetic Radiation to Ordnance refer to the following:

- a. NAVSEA OP 3565.
- b. NAVSEAINST 8020.7.

3.2.2.3 Aircraft Confined Space Program

3.2.2.3.1 COMNAVAIRSYSCOM manages the Aircraft Confined Space Program per NAVAIR 01-1A-35. NAVAIR 01-1A-35 implements aviation requirements and shall be used as the governing document for all Aircraft Confined Space Program procedures ashore and afloat. EA certification requirements are identified in NAVAIR 01-1A-35.

3.2.2.3.2 The objective of the Aircraft Confined Space Program is to ensure a safe environment is maintained when working on aeronautical equipment fuel cells and tanks. O-level activities not having a sufficient demand for EA services use the services of the supporting I-level EA. Insufficient demand is defined as less than three Aircraft Confined Space requirements in a 6-month period. Technical guidance may be provided by the supporting ship or station EA.

3.2.2.4 Unmanned Aerial Vehicle (UAV) Program

The UAV Program provides a unique application of reconnaissance and surveillance through the use of recoverable and nonrecoverable UAVs. The major objectives of the program are to provide operational forces with a means to provide target acquisition, strike control, and damage assessment for battle and surface action groups. The UAV is a highly versatile system with an operational environment ranging from shipboard (CVs and LHAs) to advanced artillery and reconnaissance activities. Generally, a recoverable UAV system consists of an air vehicle, a control and data system, a launch and recovery system, and related ancillary SE. COMNAVAIRSYSCOM is responsible for implementing and managing the UAV Program. Program management will reside in PMA-263 and fleet support in AIR-6.6.3. Nonrecoverable UAVs follow the guidelines of OPNAVINST 8000.16.

3.2.2.5 Aircraft Battle Damage Repair (ABDR)

3.2.2.5.1 ABDR authorizes maintenance procedures performed under combat conditions. ABDR permits specific deviation from the peacetime policy of performing maintenance that restores the service life of a weapons system and ensures the flying integrity of airframes and flight systems during subsequent operational periods. ABDR objectives are to:

- a. Evaluate and restore sufficient strength and serviceability to permit aircraft to fly additional operational sorties.
- b. Enable aircraft damaged beyond O-level and I-level repair capability to make a one time flight to a designated in-theater repair activity.
- c. Ensure the reporting custodian uses the Planner and Estimator Request Format ([Figure 3-15](#)) for P&E services.

3.2.2.5.2 ABDR involves basic repair techniques which return the aircraft to a useful level of combat capability, maximizing the availability of mission capable aircraft, through effective use of maintenance resources. The activation of ABDR policies is the responsibility of the battle group commander, first flag, or general officer in the operating chain of command during hostilities.

3.2.2.5.3 Implementation of ABDR procedures. This authorization cannot be delegated. ABDR procedures and techniques SHALL NEVER be used to repair operating aircraft or aircraft components during peacetime.

NOTE: ABDR authorization does not preclude the use of normal repairs.

3.2.2.5.3.1 O-Level. Damaged aircraft will be evaluated by squadron personnel assisted by depot P&E as required. Repairs will be accomplished when the required ABDR procedures and techniques are within the O-level capability.

3.2.2.5.3.2 I-Level. When intermediate ABDR maintenance is required, the IMA/FRC will provide assistance as required. I-level ABDR actions are not limited to off-equipment repairs.

3.2.2.5.3.3 D-Level. When depot maintenance assistance is required, the wing or MALS MO will request D-level personnel assistance. When a depot team is aboard or located in the same area, the wing or group MO will assign the required personnel from that team on a priority basis.

3.2.2.5.3.4 Engineering Assistance. O-level and I-level activities will be provided engineering assistance by the ISSC/LMTC or NAVAIRPRA maintenance coordinator (as required).

3.2.2.5.4 Application. ABDR maintenance procedures shall be accomplished per ABDR publications and other applicable maintenance manuals. These procedures shall only be used when authorized and only when the time and resources needed to effect standard repairs are not available.

NOTE: For repairs not contained in ABDR publications, maintenance personnel may perform ABDR actions only when directed by D-level engineers.

3.2.2.5.5 Documentation. ABDR shall be documented through normal MAF procedures and logged in the aircraft log books Miscellaneous History Record.

NOTE: When corrective action using ABDR is completed, Maintenance Control will issue an up gripe MAF to file on the right side of the ADB where it shall remain until a conventional repair is completed.

3.2.2.5.6 Termination. When directed, maintenance activities shall cease using ABDR procedures. Conventional repair actions shall be accomplished on those discrepancies to which ABDR procedures were previously applied. Aircraft requiring conventional D-level repair shall be inducted to the appropriate depot at the earliest possible date.

3.2.2.5.7 Safety. ABDR concepts, procedures, and techniques can be used to accomplish rapid repairs with minimum compromise to flight safety or mission effectiveness of aircraft. Cumulative ABDR actions must be monitored, flight restrictions documented, and flight crews thoroughly briefed on all flight or system operating limitations incurred by the application of ABDR procedures and techniques.

3.2.2.6 Aircraft Maintenance Material Readiness List (AMMRL) Program

3.2.2.6.1 AMMRL Program is the title of the overall program which provides the data required for the effective management of SE at all levels of aircraft maintenance. The program also provides data for the management of ATE related OTPSs. The program is involved with over 37,000 end items of aircraft maintenance SE and OTPS elements (IMRL items) used throughout the Navy and Marine Corps by aircraft maintenance activities. The program recognizes the many ship IMAs and base loading combinations and the various requirements for numerous airframe configurations, power plants, and avionics systems. The procedures for allowance and inventory control are defined in NAVAIRINST 13650.1.

3.2.2.6.1.1 Maintenance (including calibration), inventory control, and reporting of SE is an integral part of the task of maintaining aircraft and airborne weapon systems. It is essential that procedures and assigned responsibilities published here be clearly understood and complied with to ensure maximum SE readiness and use are achieved. The definition of SE and the various categories of SE are in [Appendix A](#). This section applies primarily to those items of SE included in the AMMRL Program and in MFs. Many items excluded from the AMMRL are considered part of the basic facility (ship or station) and are governed by other directives. The objective of the NAMP, as it relates to SE, is to achieve and maintain maximum material readiness, safety, and conservation of SE through command attention, policy direction, and appropriate administration by all activities responsible for such equipment. Included are:

- a. Maintenance (including calibration) and repair of SE at the level of maintenance which will ensure the best use of resources.
- b. Protection of SE from the elements by using active cleaning, corrosion control, preservation, and storage programs.
- c. Use of a perpetual asset inventory control system.
- d. Collection, analysis, and use of pertinent data to effectively improve SE material readiness, safety, and use while simultaneously increasing the efficient and economical management of personnel, monetary, and material resources.

3.2.2.6.1.2 SE shall be maintained and repaired by reporting custodians and supporting activities under the classification of maintenance functions. Repair and calibration of the category of SE, termed PME or TMDE, shall be accomplished under either the COMNAVAIRSYSCOM METCAL or Rework Program (as appropriate). Required rework of SE beyond the capability of the IMA/FRC shall be performed under the provisions of NAVAIRINST 13680.1 at the next level of maintenance, normally an FRC or commercial contractor. COs shall ensure all assigned items of SE are properly maintained. Calibration of SE, to include PME and TMDE designated in NAVAIR 17-35MTL-1, is required and shall be performed at the lowest calibration level possessing the capability. D-level calibration program functions are described in NAVAIRINST 13640.1.

3.2.2.6.2 The objective of this program is to document technical and cataloging data and in use asset information concerning the IMRL items which can be used by management to:

- a. Determine and establish allowance requirements for SE at activities performing O-level or I-level maintenance.
- b. Provide standardized inventory control procedures.
- c. Assist in the redistribution of in use assets.
- d. Provide a base for budgeting requirements.
- e. Assist in measuring material readiness.
- f. Provide the flexibility Marine Corps aviation activities require to rapidly configure SE and associated logistics support to sustain the aviation combat element of any task organized MAGTF.

3.2.2.6.3 Policies, procedures, and responsibilities contained here apply to all Navy and Marine Corps activities concerned with the operation, maintenance (including calibration), overhaul, control, and support of SE. Various commands are involved in the acquisition, logistic support, and maintenance of SE. CSE is managed by the Aviation SE Program Manager (PMA-260). PSE is managed by the appropriate Logistics Management Department (AIR-6.7.6) Aircraft/Weapon System Program Manager as part of the Aircraft/Weapon System Program. Tasks listed in subparagraphs 3.2.2.6.3(a) (1) through (13) below also apply to the management of PSE by the appropriate Aircraft/Weapon System Program Manager. The following provides an overview of the SE management system by identifying major activities and their responsibilities:

- a. COMNAVAIRSYSCOM (PMA-260) as the Aviation SE Program Manager shall:
 - (1) Design, develop, test, evaluate, acquire, and cause delivery of aircraft weapon systems and aeronautical CSE.
 - (2) Establish new/revised CSE requirements in SERMIS.
 - (3) Plan, program, budget, manage, and execute CSE projects to ensure fleet requirements are met.
 - (4) Use established functional organizations, field activities, laboratories, other appropriate commands and agencies, as well as commercial contractors, in carrying out required plans and programs.
 - (5) Establish the requirements and procedures to ensure all tasks, efforts, and progress toward accomplishment of CSE program objectives are being conducted by the functional groups, field activities, laboratories, other commands and agencies, and commercial contractors.
 - (6) Use NAVAIRWARCENs and FRCs to execute CSE programs and projects.
 - (7) Establish plans and procedures for the development and acquisition of ILS for CSE.
 - (8) Prepare and execute CSE ALSPs and ULSSs.
 - (9) Prepare end item CSE maintenance plans.
 - (10) Ensure ISSCs are established for all CSE programs.
 - (11) Provide funding for initial CSE installations.

(12) Plan for and provide technical documentation and training requirements to support CSE maintenance concepts, plans, and procedures.

(13) Provide primary COMNAVAIRSYSCOM headquarters contact for all CSE logistics in support of the fleet, Marine Corps, and field activities.

(14) Work with each aircraft/weapon system program manager to ensure demands and requirements for CSE are fulfilled in a satisfactory manner.

(15) Chair the CSE Configuration Change Control Board.

(16) Function as the centralized SE inventory management authority responsible for coordinating redistribution of in-use assets among the SECAs, prioritization of SE procurement, and distribution of new SE, as the PSECA.

(17) Manage and direct the AMMRL Program.

(18) Establish policies and procedures and direct the SE Retirement Program.

(19) Act as the focal point on SE policy matters, including ATE and related software.

b. COMNAVAIRSYSCOM (AIR-6.8) shall manage and fund the METCAL, SE D-level Rework, and MF Programs.

c. COMNAVAIRSYSCOM (AIR-5.0D) shall:

(1) Act as the liaison for COMNAVAIRSYSCOM activities regarding problems associated with maintenance, repair, and rework of SE.

(2) Perform SECA functions for SE assigned to COMNAVAIRSYSCOM activities.

(3) Manage and carry out AMMRL Program functions under NAVAIRINST 13650.1.

d. SECAs shall:

(1) Schedule SE into DRPs.

(2) Issue and control the distribution of SE within commands. Where possible, minimize logistic support requirements by using base loading techniques, for example, placing like items of SE at a single site.

(3) Implement, coordinate, and control maintenance, inventory control, and MDS reporting programs for SE within their command.

(4) Manage the I-level METCAL Program and implement calibration policies within their command.

(5) Propose and process recommended changes/revisions to maintenance directives for SE.

(6) Propose and process recommendations for new SE.

(7) Schedule and maintain IMRLs for all applicable Navy and Marine Corps aircraft maintenance using guidance provided by COMNAVAIRSYSCOM (PMA-260).

(8) Propose and process recommendations for changes to SE allowances, and provide management coordination for proper execution of the AMMRL Program under NAVAIRINST 13650.1.

(9) Implement and monitor fleet SE training programs for operation and maintenance of SE.

(10) Review and validate all requisitions submitted by subordinate activities for IMRL reportable SE prior to submission to the Supply System.

e. CNET shall:

(1) Develop required O-level and I-level SE maintenance training courses for user activities as approved by CNO (N789).

(2) Assist SECAs and other activities, through CENNAVAVNTECHTRA, implement training programs as funded by COMNAVAIRSYSCOM with CNO (N789) approval.

(3) Conduct SE maintenance, MDS, and AMMRL training in formal schools.

f. The reporting custodians, including Commander, Naval Surface Forces Atlantic/Pacific activities, shall:

(1) Ensure all maintenance and calibration requirements are accomplished.

(2) Ensure utilization goals are achieved, if established.

(3) Report MDS and SE transactions.

(4) Be responsible for material condition of SE, including adequate protection from the environment.

(5) Accomplish, record, and report TD compliance using the MDS.

(6) Establish and maintain SE inventory control reporting.

(7) Conduct physical IMRL inventories annually and as directed by the SECA. Ensure excess SE is reported to the SECA with a request for disposition instructions. Unless otherwise authorized by the SECA, ensure excess equipment is transferred to the supply system under NAVAIRINST 13650.1.

(8) Review the IMRL frequently, with emphasis on the evaluation of SE allowances to ensure these allowances remain consistent with the actual maintenance support requirement. Submit all reports concerning SE inventory, SE transactions, and proposed changes to SE allowances, following NAVAIRINST 13650.1 and SECA instructions.

(9) Ensure all requisitions for reportable IMRL SE, including those in excess of authorized allowance, or which is not listed in the activity's IMRL as an authorized item, are submitted via the SECA. The requisition must contain full justification of the requirement for such SE.

(10) Issue SE licenses.

(11) Subcustody SE to supported activities for their use.

(12) Review supported activities applicable operating/maintenance procedures for SE subcustodied to them.

- (13) Perform maintenance and submit MDS reports on supported activities' IMRL SE.
- (14) Conduct SE training to qualify operators under approved syllabi.
- (15) Conduct SE personnel and facility requirements planning.
- (16) Assume the responsibility for SE listed in their IMRLs.

g. The FRC CO is responsible for D-level rework, modification, and calibration of SE scheduled into the FRC under NAVAIRINST 13680.1 and NAVAIRINST 13640.1. The FRC shall:

- (1) Designate an SE coordinator.
- (2) Act as ISSC for PSE for assigned weapon systems/equipment.
- (3) Plan the rework capability, using milestone charts, to meet scheduled requirements, and obtain all publications, drawings, training, and skills required, when designated by the COMNAVAIRSYSCOM ALSP/ULSS as DRP for SE end items or components.
- (4) Ensure examination and evaluation is performed on all SE upon arrival at the depot, all required material and outstanding changes/bulletins are ordered and complied with, and all applicable approved changes are scheduled for incorporation during rework.
- (5) Ensure all SE rework modification and calibration efforts are documented and the SE Custody and Maintenance History Record (OPNAV 4790/51) is received, updated, and accompanies each item of SE reworked, modified, or repaired. Initiate new records/forms whenever efforts to obtain records/forms from the previous reporting custodian are not successful.
- (6) Ensure SE rework and calibration records are maintained and reports provided as required.

h. SE ICPs/PSICPs are activities assigned material management responsibility for end items of SE. All ICPs are responsible for computing SE requirements and procuring assigned end items to fill requirements. Assignment of ICPs for SE may be found in NAVSUP Publication 485. The PSICPs are NAVICP-PHIL and NAVICP-MECH.

- (1) NAVICPs shall:
 - (a) Develop and implement policies and procedures relating to SE supply support, including SSMPs, ARR criteria, interim/augmented support, and stock coordination.
 - (b) Perform material management responsibilities for COMNAVAIRSYSCOM cognizance SE line items.
 - (c) Ensure an adequate quantity of assigned SE is available for distribution under fleet and COMNAVAIRSYSCOM requirements and within available resources.
 - (d) Initiate follow-on procurement for assigned SE.
 - (e) Issue SE, based upon allowances established by COMNAVAIRSYSCOM, and maintain a record of all accountable items of SE released to miscellaneous activities, for example, contractor support programs, loaned, bailment, not assigned to a major operating command, or not under the cognizance of the AMMRL Program for reporting purposes.

- (2) PSICPs shall:

- (a) Provision, procure, and distribute repair parts for assigned SE.
- (b) Maintain lists and provisioning codes for repair parts for assigned SE.
- (c) Ensure supply support requests for repair parts not managed by the PSICP are accepted by the assigned ICP.
- (d) Prepare SSMP and milestone charts for COMNAVAIRSYSCOM.
- (e) Prepare ARRs and equipment reference lists for interim spare part support of SE and aviation consolidated allowance lists.

i. SE ISSCs are activities assigned responsibility by COMNAVAIRSYSCOM to perform specified maintenance engineering functions for SE. They provide maintenance engineering assistance, perform EIs, review and take action on beneficial suggestions, maintain out-of-production technical manuals and MRCs, PQDRs, HMRs, NETS reports and suggestions, and develop ECPs.

(1) ISSCs for SE are:

(a) NAVAIRWARCENACDIV Lakehurst, NJ, is the ISSC for most CSE, less calibration standards. In addition, NAVAIRWARCENACDIV Lakehurst, NJ, is the ISSC for common, non-IMRL equipment, such as drill presses, grinders, lathes, sewing machines, and welders used in support of aircraft, aircraft components, and SE. NAVAIRWARCENACDIV Lakehurst, NJ, shall coordinate test and measurement equipment space, power, and environmental requirements for all ships operating aircraft. In addition, NAVAIRWARCENACDIV Lakehurst, NJ, is responsible for the specified engineering, acquisition, and ILS tasks for SE.

(b) The ISSC assigned ISEL responsibilities for the weapon system or equipment, for example, H-60, F/A-18, F-14, is also the ISSC for PSE which supports the weapon system or equipment.

(2) Other supporting activities or field activities provide specialized support for SE similar to the support provided for aircraft. These activities include:

(a) NATEC provides coordination of technical data distribution and field engineering assistance and instruction for the maintenance, repair, and operation of SE.

(b) NAVAIRWARCENACDIV Lakehurst, NJ, Research and Engineering Group, Support Equipment and Aircraft Launch and Recovery Equipment Department, Evaluation and Verification Division (Code 4.8.12), conducts test and evaluations of SE including supportability evaluations.

(c) NWADIV Corona, CA, under the management control of COMNAVSEASYSYSCOM provides technical guidance to the METCAL Program. Use of the NWADIV by COMNAVAIRSYSCOM has been coordinated with and authorized by COMNAVSEASYSYSCOM. NWADIV provides SE calibration procedures, technical guidance, and services as required.

(d) Representatives for COMNAVAIRSYSCOM in provisioning and source coding repair parts for SE.

3.2.2.6.4 The following definitions apply to the AMMRL Program:

a. Accountable Item. The term "accountable item" applies to all SE assigned source data reportable code R or S, or SECA reportable code R or S, or is held by an activity with an activity reportable code Y. All

other IMRL items not meeting any of the above criteria and which are assigned report code N (nonreportable) are not reported.

b. Prime Item. The head-of-family, or preferred item, currently procurable (the latest version which will be procured upon requisition if all wholesale stock and in-use excess items are depleted).

c. Alternate Item. An interchangeable item or suitable substitute capable of performing the same function(s) as the prime item.

d. Custody Codes. Custody codes are single position, alpha characters which provide supplemental accountability detail about an SE transaction and the effect of the transaction on supply and financial records. The codes identify a specific category of SE items placed in the primary custody of an IMA/FRC. The items are issued to other activities (usually O-level) on a subcustody basis. Custody codes are assigned using the following general guidelines:

(1) Code D. This code is assigned to items listed only in a detachment list code, requiring management, and having a custody code of P or E. Code D will take precedence in IMRL printing, and the D coded item will be allowed in the same manner as the P coded item listed. For example, Code D would apply to items required on air capable ships by deployable detachments.

(2) Code E. This code is assigned to items used infrequently (less than once per month), and indicates the item is available from the supporting IMA as required. Supporting IMAs/FRCs are authorized a predetermined quantity. The items are made available to activities by the IMA and after use are returned to the supporting IMA/FRC.

(3) Code M. This code is assigned to noncalibratable items requiring management not otherwise custody coded. The items will be allowed in the same manner as L coded items. Applicable items will be identified by SECAs and assigned Code M by NAVAIRWARCENACDIV Lakehurst, NJ personnel, for example, a noncalibratable item that is a carrying case for a calibratable item when listed in the source data as a separate end item.

(4) Code N. This code is automatically assigned to items not requiring calibration or management and consequently not otherwise coded. If the maintenance level is an I, then Custody Code N is automatically entered.

(5) Code P. This code is assigned to items weighing over 200 pounds (over 300 pounds for wheeled equipment), exceeding any one of the following dimensions in a stowed configuration: 6' x 3' x 2', fragile or subject to misalignment or loss of calibration through transportation, or not coded for infrequent use. When authorized for supporting IMAs/FRCs, the IMA contingency support package quantity is the total quantity required for subcustody issue to each O-level activity. The items are issued on a subcustody basis for full time utilization, and will be returned to the IMA/FRC prior to deployment. When deployed, user activities will be issued these items on a subcustody basis from the new supporting IMA/FRC.

(6) Code L. This code is assigned to all items requiring calibration and management, designated for use at the O-level of maintenance, and not already coded D, E, or P. The quantity authorized will be the total quantity required for subcustody by each activity supported. The items are retained by O-level activities when deployed.

e. Excess In-use Accountable SE. On hand SE which meets one of the following criteria:

(1) Quantities of IMRL R coded SE which are in excess of the authorized IMRL allowance.

(2) Quantities of SE which are not authorized by the IMRL.

f. IMRL. A consolidated allowance list specifying authorized quantities of certain aviation SE items required by a particular activity to perform its assigned maintenance level functions.

g. OTPS. The total grouping of OTPS required to test an avionics system on ATE.

h. SE. The IMRL and non-IMRL equipment required to make a system, subsystem, or end item of equipment (SE for SE) operational in its intended environment. This includes all equipment required to install, launch, arrest (except Navy shipboard and shore-based launching and arresting equipment), guide, control, direct, inspect, test (including ATE hardware and software), adjust, calibrate, appraise, gauge, measure, assemble, disassemble, handle, transport, safeguard, store, actuate, service, repair, overhaul, maintain, or operate the system, subsystem, end item, or component.

(1) PSECA is the term applied to COMNAVAIRSYSCOM (PMA-260) who functions as the centralized SE inventory management authority.

(2) PSECA is responsible for coordinating redistribution of in use assets among the SECAs, prioritization of SE procurement, and distribution of new SE.

i. SECA is a term applied to major aviation commands exercising administrative control of AMMRL Program SE end items for allowance and inventory control. The following is a list of designated SECAs:

(1) COMNAVAIRFOR.

(2) CNATRA.

(3) COMNAVRESFOR.

(4) CENNAVAVNTECHTRA.

(5) COMNAVAIRSYSCOM (AIR-5.0D).

NOTE: PMA-260 executes SECA functions for the Maritime Prepositioning Force and for initial outfitting of new construction ships.

j. SERMIS. SERMIS is a collection of technical and cataloging data identifying SE end items required for O-level, I-level, and D-level aircraft maintenance. SERMIS provides the SECA with on-line visibility of source, allowance, inventory, and rework data to aid in inventory control. SERMIS is the repository of master data for printing IMRLs and provides in-use asset visibility to NAVICP, NAVAIRWARCENACDIV Lakehurst, NJ, and COMNAVAIRSYSCOM.

k. LAMS. LAMS is an automated management information system which provides for standardized local management of IMRL assets. Once implemented, LAMS uses the SE Transaction Report (OPNAV 4790/64) as the source document; therefore, it is compatible with SERMIS. It is designed to interface with existing and scheduled SE management programs.

l. TPS. A TPS consists of those items needed to test a unit-under-test on ATE. This includes the electrical, mechanical, instructional, and logical decision elements. The TPS elements are:

(1) Test Program.

(2) Interconnection Device.

(3) Test Program Instruction.

(4) Supplementary Data.

3.2.2.6.5 An IMRL is constructed for all Navy and Marine Corps aviation maintenance activities by extracting applicable portions of the SERMIS. The on hand quantity listed in the IMRL is based on reports of IMRL item transactions and physical inventories. Data is compiled and maintained to determine material supportability for each IMRL activity. The data is also consolidated to produce Type Wing, MAW, SECA, and Navy wide listings. IMRLs identify material requirements and provide a basis for SE procurement. This information aids decisions regarding overall readiness posture, budget forecasts, equipment procurement, and redistribution of assets.

3.2.2.6.6 NAVAIRINST 13650.1 contains detailed IMRL information.

3.2.2.6.6.1 Content and Format. IMRLs are presented in five sections, with a bi-monthly cumulative supplement. These sections are employment data, change list, index, main body, and the activity inventory record.

3.2.2.6.6.2 IMRL Cumulative Supplement. At each monthly SERMIS source data update, the supplement is produced to provide an activity with a cumulative list of the changes to their IMRL, since the printing of the currently held IMRL. Correct use of the cumulative supplement makes it an informative and labor saving device, since only the items appearing on the list need to be reviewed. All other items on the basic IMRL remain the same. Changes will remain in the cumulative supplement until the next IMRL printing. Changes listed in the supplement will be included in the change list section of the next IMRL printing, at which time the cumulative supplement cycle commences again. In the first cumulative supplement after an IMRL printing, an asterisk (*) will appear in the first column for each item listed. In the second and subsequent cumulative supplements for each IMRL, an asterisk (*) will appear in the first column to differentiate changes which occurred in the current month from those appearing in the previous cumulative supplement.

3.2.2.6.6.2.1 The changes included in the supplement are: additions, deletions, and changes to the prime NSN or PN, report code, custody code, computed allowance, total authorized allowance (tailoring), and list codes.

3.2.2.6.6.2.2 All changes included in the IMRL cumulative supplements are reflections of updates to the SERMIS database.

3.2.2.6.6.2.3 Upon receipt of the current cumulative supplement, initiate the following action for those new items listed and required, but not on hand:

- a. Order items with an even numbered cognizance symbol.
- b. Order, or include in the next budget submission, those items having no NSN or having an odd numbered cognizance symbol.

3.2.2.6.6.2.4 Submit an IMRL Revision Request per existing instructions for all items added but are determined as "not required to perform assigned mission" or have been deleted but are required.

3.2.2.6.6.2.5 Request disposition per existing instructions for those deleted on hand items which are not required.

3.2.2.6.6.2.6 In NALCOMIS, the Asset Management Subsystem functions to maintain inventory, utilization, and readiness data for SE and IMRL items. The IMRL Manager is responsible for all IMRL accounting. IMRL transaction conversations are designed to support the automated IMRL and to produce the reports associated with it. IMRL inventory gains and losses, reidentifications, inventory updates, subcustody information, and item requisitions and receipts are entered. NALCOMIS provides: IMRL listings, in either

part number or IMRL line item number sequence; Support Equipment Transaction Reports (OPNAV 4790/64); the IMRL Custody/Subcustody Summary; the IMRL Budget Request Report; and the Outstanding Requisition Report. Several on-screen inquiries are available in the SE and IMRL transaction processes. They include the IMRL PN cross-reference, which provides information on prime and alternates equipment, with serial numbers and location; the IMRL requisition inquiry, which displays all of the requisition data connected with a particular item; and the calibration due date inquiry, which displays all times due for calibration within a specified time frame.

3.2.2.6.6.3 IMRL Maintenance. The MO will appoint an IMRL Manager who is responsible to the Material Control Officer for the maintenance of the IMRL. The IMRL Manager shall:

- a. Report by TR to the SECA, all reportable item transactions, such as the receipt of new items, transfer of items on hand, surveys, or changes in on hand quantities.
- b. Conduct an annual physical inventory and submit the inventory report to the SECA via the chain of command.
- c. Ensure IMRL revision requests are submitted for all required changes, additions, or deletions.
- d. Submit letters through the chain of command requesting disposition instructions for excess SE.

NOTE: Reportable SE listed in the IMRL will be on hand, on order, or certified not required for mission support by submission of a revision request.

- e. Submit surveys.
- f. Maintain custody records for on hand assets.
- g. Attend the formal Support Equipment (SE) Asset Manager course (Course E/D 555-0026) before assignment as IMRL Manager.

NOTE: For Marine Corps activities, the annual inventory will be validated with the SSD which shall maintain the master custody file for all supported squadrons.

3.2.2.6.6.4 IMRL Transaction Reporting. All items listed in the IMRL are subject to transaction reporting. All transactions concerning IMRL items should be reported at the time they occur. Complete, accurate, and timely transaction reporting is vital to effective budgeting, procurement, and overall readiness.

3.2.2.6.6.4.1 Types of Transactions. The following are types of transactions reported by IMRL holders (refer to SECA instructions for procedures):

- (1) Additions/Increases. Includes all changes in on hand quantities due to receipt of new or additional items, gains by physical inventory, and reidentification.
- (2) Deletions. Includes decreases in on hand quantities due to transfer, loss, or reidentification.
- (3) Changes in Condition. Reported SE determined to be beyond economical repair will be surveyed and reported accordingly.

3.2.2.6.6.4.2 Reports. The Support Equipment Transaction Report (OPNAV 4790/64) is used by IMRL activities for SE transaction reporting. [Figures 3-16](#) and [3-17](#) show the TR card with an explanation of the various entries for the activity submitting the report.

3.2.2.6.6.4.3 Reporting Procedures. Requirements for SE transaction reporting are similar for all SECAs; however, their instructions should be consulted for details.

3.2.2.6.6.5 Annual Inventory. Although continuous management control of SE is maintained by timely submission of TRs, an annual inventory of SE must be conducted, records corrected, and a report submitted.

3.2.2.6.6.5.1 Inventory. The annual physical inventory may be conducted any time during the calendar year at the discretion of the SECA. The inventory must be a wall-to-wall inventory conducted by a team composed of personnel who are knowledgeable in identification of all types of SE.

3.2.2.6.6.5.2 Corrective Action. The results of the physical inventory will be matched against the activity's custody records. All discrepancies will be investigated and differences reported by TRs.

3.2.2.6.6.5.3 Reports. Written reports are submitted to the SECA via the chain of command.

3.2.2.6.6.6 IMRL Revision. SE allowances are normally the same for two activities supporting the same number and type of aircraft under similar conditions. However, the AMMRL Program provides procedures for tailoring these allowances, up or down, when conditions change or tailoring is otherwise warranted. The activity holding the IMRL for which a change is desired initiates tailoring action by submitting an IMRL Revision Request (NAVAIR 13650/1). The IMRL Revision Request is available in the Navy Supply System.

3.2.2.6.6.7 Reporting Excess IMRL Assets. Although reporting transactions, taking inventory, and submitting change requests are important elements in the maintenance of an IMRL, the reporting of excess SE is just as important. These reports enable the SECAs to redistribute SE to other activities. When excess SE exists, activities should notify the cognizant SECA by letter or message, via the chain of command, requesting disposition instructions, or submit an IMRL Revision Request for increased authorized allowance. Inter-SECA redistribution actions may be taken without PSECA approval providing the concerned SECAs are in agreement. Conflicts concerning inter-SECA redistribution actions will be resolved by the PSECA.

3.2.2.6.6.8 Surveys. Items lost or beyond economical repair should be surveyed. Procedures for initiating and processing surveys are in [Chapter 5](#). Surveys for most IMRL items must be approved by the SECA. The IMRL manager should consult applicable SECA instructions for guidance in each case. After approval is obtained, surveyed items are reported via a TR and disposed of as directed.

3.2.2.7 Configuration Management (CM) Program

3.2.2.7.1 COMNAVAIRSYSCOM has management responsibility for the CM Program. It was established to permit achievement of required item performance, operational efficiency, logistic support, and readiness through effective management of item configuration requirements. NAVAIRINST 4130.1 establishes policy and procedures for configuration identification and management of necessary engineering changes with respect to content, cost, evaluation, timing of processing, and implementation. Implementation of approved configuration modifications is accomplished through the TD system and is monitored by the TDSA Program. NAVAIR 00-500C will be the governing and primary screening tool for technical directive compliance of all aircraft and aircraft engines.

3.2.2.7.2 Specific TD system information is in MIL-D-81992B and NAVAIR 00-25-300.

3.2.2.7.2.1 CM is a process for establishing and maintaining consistency of a product's performance and functional and physical attributes with its requirements, design, and operational information throughout its life. The CM effort includes identifying, documenting, and verifying the functional and physical characteristics of an item; recording the configuration of an item; and controlling changes to an item and its documentation. It shall provide a complete audit trail of decision and design modifications. CM includes three basic elements: configuration identification, configuration control, and configuration status accounting.

CM policies/procedures, definitions, and basic elements are in NAVAIRINST 4130.1 and are applicable to SE.

3.2.2.7.2.1.1 NAVAIR 00-500C will reflect all applicable TDs assigned to aircraft and aircraft engines. TD compliance shall be documented in the aircraft logbook, AESR, MSR, ASR, SRC, and EHR (as applicable). COMNAVAIRSYSCOM (AIR-6.1) APMLs/ISSCs will review and provide concurrence with COMNAVAIRSYSCOM (AIR-6.8.5) TDSA database for applicable NAVAIR 00-500C reports on a semiannual basis.

3.2.2.7.2.1.2 The Technical Directive Compliance Program ([Chapter 10](#), paragraph 10.10) is an integral part of CM. An important component within the TD Program is TD compliance documentation, specifically the configuration status accounting element. It provides the controlling custodian and other management personnel with the information necessary to manage modification programs and to make SE distribution/redistribution decisions.

3.2.2.7.2.1.3 Permission for local modification of SE must be obtained from the controlling custodian/COMNAVAIRSYSCOM. Procedures for obtaining permission are in [paragraph 3.2.2.7.5](#).

3.2.2.7.2.2 For AWSE items, TD compliance may be assigned to either the IMA/FRC or the Weapons Department. Additionally, TD compliance for AWSE may be assigned to the Weapons Department with an assist by AIMD. This information will be noted in the instructions contained in the TD. When assigned TD compliance, the Weapons Department will be responsible for only those items which are on subcustody to the Weapons Department. IMAs/FRCs will accomplish TD compliance for AWSE which is on subcustody to other departments, divisions, or supported activities.

3.2.2.7.3 TDs direct the modification or one-time inspection of all COMNAVAIRSYSCOM (including field activities) procured equipment, in either the contractor's, Navy's, or Marine Corps units, and they identify the documentation to be completed to show a TD was incorporated or accomplished.

3.2.2.7.3.1 Requisition formal TDs by title and number using the DD 1348. Refer to NAVSUP Publication 485 for applicable procedures. Requisitions are submitted to the appropriate inventory control point listed in NAVSUP Publication 2003.

3.2.2.7.3.2 NAVAIR 00-25-300 and [Chapter 10](#), paragraph 10.10 provide detailed TD Compliance Program information.

3.2.2.7.4 The TDSA Program is used for recording, by specific aircraft, engine, and equipment, the applicability and incorporated or not incorporated data for all TDs requiring logbook/records or CM ALS records update.

3.2.2.7.4.1 Application of these lists to the logbook or CM ALS records applies to all aircraft designated by COMNAVAIRSYSCOM. This application continues in effect for each designated aircraft, until the specific aircraft is removed from the inventory of naval aircraft.

3.2.2.7.4.2 All TDs state specifically where compliance will be recorded in the applicable aircraft logbook/records, TD Requirements Lists, and Technical Directives (OPNAV 4790/24A) page. Activities with NTCSS Optimized OMA NALCOMIS shall use the CM ALS TD records.

NOTE: Lists Nos. 02 and 04 may replace the Technical Directives page for aircraft only. All other Lists Nos. 02 and 04 are provided for use as a management tool only. For aircraft, care must be taken before destroying Technical Directives pages. Production equivalents performed on the aircraft by the manufacturer are not presently covered by the TDSA Program and will not appear on

the Lists Nos. 02 and 04, therefore, any Technical Directives page with production equivalent entries must be maintained for historical reasons.

3.2.2.7.4.3 The TDSA Program consists of:

- a. List No. 01, Applicability List. A list of effective TDs which provides specific applicability information.
- b. List No. 02, Technical Directive Requirements Not Incorporated (NINC) Listing. A list of effective TDs, applicable to a specific BUNO/SERNO but not incorporated. It is distributed quarterly to the reporting custodian.
- c. List No. 03, Technical Directives Status Accounting INC/NINC Summary Matrix. This summary report lists BUNO, TDs, and incorporation status. This report also allows the Type Wing to easily monitor configuration of assigned aircraft and is distributed quarterly to the Type Wing.
- d. List No. 04, Technical Directives Requirements Incorporated (INC) Listing. A list of effective TDs applicable to a specific BUNO/SERNO and reported as incorporated. It is distributed quarterly to the reporting custodian.
- e. List No. 04H, History File. This file is maintained by the COMNAVAIRSYSCOM (AIR-6.8.5) to reduce active file volume and operating cost. The List No. 04H is produced and distributed annually to reporting custodians and marked "Historical Inc., Retain for Permanent Record".
- f. NTCSS Optimized OMA NALCOMIS activities shall use the data elements ALS TD records. CM ALS records will have combined lists Nos. 02 and 04 into one electronic record.

NOTES: 1. Care must be taken when removing List No. 04 each quarter to ensure List No. 04H is not mistakenly removed. Not all aircraft have a history baseline, therefore, not all aircraft have List No. 04H available. Contact the appropriate TDSA Program Manager if a question develops.

2. This does not apply to NTCSS Optimized OMA NALCOMIS activities with electronic TD records.

3.2.2.7.4.4 The TDSA Program Manager at COMNAVAIRSYSCOM shall comply with the following:

- a. Develop and maintain computer programs required to store, process, and retrieve information from the TDSA database.
- b. Receive notices of errors in the published Lists Nos. 02 and 04 from reporting custodians. Errors are reported by the custodian by annotating List No. 02. Within 1 week after List No. 02 is received at COMNAVAIRSYSCOM, the TDSA Program Manager will correct the file and mail on the next mailing cycle.
- c. Review the preliminary copy of the TD during verification to ensure those data elements affecting the TDSA Program are accurate and trackable.
- d. Insert XRAY messages when received and ensure the PED has been updated when equipment is inducted for rework. Update engine inventory using monthly DECKPLATE data, and ensure the TDSA database correctly identifies latest engine status and module assignment.
- e. Review and correct aviation 3M transaction and error reports when received. Notify the cognizant controlling custodian or Type Wing of excessive error reporting.
- f. Add new equipment to the database as required.

g. Maintain close liaison with users of the TDSA Program and provide technical information as requested.

h. Print and distribute the following TDSA reports:

- (1) Copies of Lists Nos. 02 and 04 to the reporting custodian quarterly.
- (2) A copy of List No. 04H to the reporting custodian annually.
- (3) A copy of List No. 01 to the Type Wing and reporting custodian semiannually.
- (4) Copies of List Nos. 02 and 04 to the contractor (as applicable) when the aircraft is scheduled for off-site standard rework or modification directed by the T/M/S Program Manager.
- (5) Copies of List No. 03 to the Type Wing quarterly.
- (6) Specified reports as requested.

3.2.2.7.4.5 Reporting custodians shall:

a. Prior to inserting new Lists Nos. 02 and 04 in the TD section of the logbook, verify the lists with the previous lists. The replaced lists may be destroyed. Any errors or omissions from the lists will be reported to the TDSA Program Manager within 30 days of receipt of the quarterly lists. Any inaccuracies will be annotated on List No. 02, using the appropriate status code. Lists Nos. 02 and 04 status codes are: P - previously incorporated, C - complied with, or D - does not apply. TDs appearing on List No. 04 as INC, but are actually NINC, should be lined out and written in on List No. 02 using the appropriate status code. The annotated List No. 02 is forwarded to: COMMANDER, ATTN AIR-6.8, NAVAL AIR SYSTEMS COMMAND, 47060 MCLEOD ROAD UNIT 8, PATUXENT RIVER MD 20670-1626

NOTE: Use of Status Code D must be verified by a QAR.

b. Report the incorporation of TDs on all equipment in their custody through the aviation 3M System [Chapters 15](#) and [16](#). Activities with NTCSS Optimized OMA NALCOMIS shall report incorporation of TDs via WO data replication or CM.

c. Annually, verify and insert the new List No. 04H in the logbook. After removing and verifying with the new List No. 04H, destroy the old List No. 04H; however, the Lists Nos. 04 and 04H will indicate the INC status of all applicable TDs.

NOTES: 1. Compliance with above procedures does not negate the reporting custodian's responsibility for making appropriate entries in other sections of the aircraft logbooks, CM ALS, AIR, or W&B record.

2. This does not apply to NTCSS Optimized OMA NALCOMIS activities with electronic TD records.

3.2.2.7.4.6 At any given time, the annotated List No. 02 and current List No. 04 will reflect the TD status of aircraft. For the types and categories of TDs and supply data refer to [Chapter 5](#).

3.2.2.7.5 This instruction specifies COMNAVAIRSYSCOM is the only authority to modify or withhold modification of aeronautical equipment. The CNO/COMNAVAIRFOR does not desire to prevent or discourage operating activities from using their foresight or initiative in performing work of an experimental nature to correct or overcome quality deficiencies in aeronautical equipment. However, modification of more than one aircraft or unit prior to COMNAVAIRSYSCOM approval is not authorized. Authorization must be

obtained from the ACC/TYCOM prior to any modification. Particular attention will be directed to the following:

- a. Logistic material requirements.
- b. Use of space reserved for approved changes.
- c. Crew confusion upon transfer of aircraft and equipment.
- d. Expenditure of additional unplanned man-hours and material.
- e. Configuration to provide the optimum conditions of safety, operational, and material readiness.
- f. Performance characteristics being adversely affected.
- g. Impact on weight and center of gravity with respect to the associated limits.

3.2.2.7.6 ACC/TYCOM approval

3.2.2.7.6.1 Operating activities shall inform the ACC/TYCOM of the desire to prototype a modification. They shall provide justification and a description of the change to be made and the unit/system involved.

3.2.2.7.6.2 The ACC/TYCOM shall inform the requesting activity whether or not the action is approved, deferred, or cancelled, after ensuring:

- a. The equipment is not removed to support other operational requirements.
- b. The equipment does not require special tools and procedures.
- c. The change proposed has not been previously approved.
- d. The change has not been or is not currently being prototyped by another activity.

e. Appropriate flight clearances are obtained from COMNAVAIRSYSCOM (AIR-5.1) per OPNAVINST 3710.7.

3.2.2.7.6.3 The operating activity shall modify the data in the aircraft W&B Handbook to reflect the W&B impact of the modification. Specifically, the new basic weight and moment of the aircraft shall be derived and recorded in Chart C, any new items of removable equipment shall be added to Chart A, and any revisions to the loading data shall be incorporated into Chart E. The new basic weight and moment can be derived by calculation, using the best data available for the component elements of the modification, but for extensive modifications the aircraft shall be weighed after completion of the modification.

3.2.2.7.7 Upon satisfactory completion and evaluation of the prototype, the originating activity will submit a rough draft TD per NAVAIR 00-25-300 format. Such submission is made via the chain of command to the ACC/TYCOM. After ACC/TYCOM concurrence, the rough draft TD will be routed per NAVAIR 00-25-300 for review and approval. The TD will be prepared and published (as applicable).

3.2.2.8 Weight and Balance (W&B) Program

3.2.2.8.1 Purpose. The W&B Program provides the means to ensure aircraft weight and center of gravity remain within established limits. COMNAVAIRSYSCOM (AIR-4.1) is the cognizant authority for the W&B Program. Detailed instructions for administering the W&B Program are in NAVAIR 01-1B-40 and NAVAIR 01-1B-50.

3.2.2.8.2 W&B Officer

3.2.2.8.2.1 Designation. Aircraft reporting custodians shall designate the W&B Officer in writing. The W&B Officer shall ensure all elements of the W&B Program are effectively carried out.

3.2.2.8.2.2 Qualifications. To be qualified for assignment as W&B Officer, a person must have successfully completed one of the following courses:

- a. Naval Aviation Maintenance Program Indoc course (Course C-4D-2012).
- b. Naval Aviation Maintenance Program Management course (Course C-4D-2013).
- c. Aircraft Weight and Balance course (Course D-516-0001).
- d. Aircraft Weight and Balance course (Course E-516-0001).

3.2.2.8.2.3 Responsibilities. The W&B Officer shall ensure:

- a. W&B Handbooks for all assigned aircraft, including newly received aircraft, are complete, current, and maintained in the correct format.
- b. Procedures are in place to ensure W&B flight clearance is accomplished per OPNAVINST 3710.7.
- c. W&B impacts of changes to aircraft configuration, including incorporation of TDs, are properly recorded in the W&B Handbooks of affected aircraft and the latest basic weight and moment values in Chart C of each W&B Handbook correctly reflect the basic weight and moment of its aircraft.
- d. Concerns regarding accuracy of W&B data for any assigned aircraft are resolved by having aircraft weighed by an FRC field team.

NOTE: Commands using OOMA shall ensure the Basic Weight for each aircraft is accurately calculated and reflected (as appropriate) in all flight records or documents.

- e. ABDR actions do not cause unacceptable aircraft W&B.
- f. The most current release of AWBS is being used.
- g. Historical DD365 forms are retained and isolated to accurately track and authenticate current W&B data as computed on the AWBS. These records may be disregarded upon the aircraft being weighed and a new Form B initiated.
- h. During aircraft transfer and receipt, ensure all electronic files holding W&B data forms are reviewed for accuracy and printed for proper insertion within the correct location of the Weight and Balance Handbook.
- i. All AWBS W&B Program back-up discs, such as A} floppy disc, CD-ROM, or other approved media, have the appropriate security classification and are properly labeled with the applicable aircraft BUNO, acceptance date, and W&B classification (Class 1 or Class 2).

NOTE: NAVAIR 01-1B-40 and NAVAIR 01-1B-50 provide additional information needed to perform the duties of the W&B Officer.

3.2.2.8.3 Other W&B Personnel. Personnel maintaining W&B records under the supervision of the W&B Officer must have successfully completed the Aircraft Weight and Balance course (Course D/E-516-0001).

3.2.2.8.4 An activity receiving an aircraft should conduct an inventory of the aircraft and ensure the W&B records are updated including the basic weight and moment (if necessary).

3.2.2.8.5 W&B Classification. For W&B purposes, aircraft are assigned the following classifications:

CLASS 1

A-4, A-6, AV-8, E-2, EA-6, F-5,
F-14, F-16, F/A-18, H-1, H-2, H-3,
H-46, H-60, OV-10, S-3, T-2, T-34,
T-39, T-44, T-45, TC-4, TH-57, V-22

CLASS 2

C-2, C-9, C-12, C-20, C-130,
E-6, H-53, P-3

NOTE: W&B classifications are defined in NAVAIR 01-1B-40 and NAVAIR 01-1B-50.

3.2.2.8.6 Availability of W&B Control Material

3.2.2.8.6.1 Material Delivered with the Aircraft. A W&B Handbook is delivered with each aircraft and includes a copy of NAVAIR 01-1B-40, Charts A and E applicable to the aircraft T/M/S, and the delivery basic weight and moment recorded on Chart C. In addition, a W&B calculator is delivered with some Class 2 aircraft. Consult the instruction manual for the calculator and use in conjunction with the W&B Handbook for the aircraft.

3.2.2.8.6.2 Publications. NAVAIR 01-1B-40 and NAVAIR 01-1B-50 are available through NAVSUP Publication 2003.

3.2.2.8.6.3 Forms. The following W&B forms are available through NAVSUP Publication 2003:

- a. Record of Weight and Balance Personnel (DD 365).
- b. Chart A-Basic Weight Checklist Record (DD 365-1).
- c. Form B-Aircraft Weighing Record (DD 365-2).
- d. Chart C-Basic Weight and Balance Record (DD 365-3).
- e. Weight and Balance Clearance Form F (DD 365-4).

3.2.2.8.6.4 Charts A and E. Chart A (Basic Weight Checklist Record) and Chart E (Loading Data) for a specific T/M/S aircraft may be obtained from COMNAVAIRSYSCOM (AIR-4.1).

3.2.2.8.6.5 Handbook Covers. W&B Handbook covers may be obtained from COMNAVAIRSYSCOM (AIR-4.1.5).

3.2.2.9 Gas Turbine Engine Maintenance Program

3.2.2.9.1 The objective of this program is to provide the policy and procedures whereby maintenance activities can effectively accomplish their assigned engine maintenance responsibilities. Specific IMA/FRC gas turbine engine three-degree assignments are in NAVAIR NOTE 4700. Engines not included in NAVAIR NOTE 4700 will receive support per applicable WSPDs. The Gas Turbine Engine Maintenance Program was issued under the three-degree concept. Under this concept, each engine intermediate MIM defines specific engine maintenance actions as either first-, second-, or third-degree functions. These functions are determined largely by degree of difficulty and recurring frequency. Selected IMAs/FRCs are assigned to provide a specific degree of support for specific engines. This assignment is based primarily on the types of engines to be supported both on their station and within the general geographical area. However, an IMA/RFC may be required by higher authority to provide repair support for engines shipped from outside the

area when this action supports the goal of repair with the least expenditure of material, manpower, and money. The degree of repair capability for an IMA/FRC can, at any time, be adjusted to accommodate anticipated changes in required support; however, expansion of capability without a reduction elsewhere may not be possible because of SE shortages.

3.2.2.9.2 Functions given in the definitions below represent broad generalities. Refer to the engine intermediate MIMs maintenance allocation tables to determine the degree assignment of specific repair functions as these vary from engine to engine. Terminology used in relation to this program, in addition to standard definitions, are amplified as follows:

a. Gas Turbine Engines. All gas turbine engines and their accessories/components, whether used for powering flight, providing auxiliary power, or starting purposes (airborne/ground units).

b. First-Degree Repair. The repair of a damaged or nonoperating gas turbine engine, its accessories, or components to an acceptable operating condition when the repair includes compressor rotor replacement/disassembly to the extent the compressor rotor could be removed. Additionally, any repair beyond that authorized for a second-degree activity, but not to the extent required to be performed at D-level, will be defined as a first-degree repair.

c. Second-Degree Repair. The repair of a damaged or nonoperating gas turbine engine, its accessories, or components to an acceptable operating condition. Second-degree repairs will normally include: the repair/replacement of turbine rotors and combustion sections, including afterburners; the replacement of externally damaged, deteriorated, or time limited components, gearboxes, or accessories; and minor repairs to the compressor section. Further, the repair or replacement of reduction gearboxes and torque shafts of turboshaft engines and compressor fans of turbofan engines, which are considered repairable within the limits of the applicable intermediate MIMs, shall be accomplished by second-degree activities.

d. Third-Degree Repair. This repair encompasses major engine inspections and the same gas turbine engine repair capability as second-degree except certain functions which require high maintenance man-hours and are of a low incidence rate are excluded.

3.2.2.9.3 Due to the high cost of establishing and supporting engine repair facilities, many factors must be taken into consideration before a decision can be made to support a new effort. Among these are:

- a. Equipment requirements.
- b. Facility requirements.
- c. Engine test facility requirements.
- d. Personnel requirements and associated technical training.
- e. Proximity of other facilities to provide like support.
- f. Productivity and capacity.

3.2.2.9.4 COMNAVAIRSYSCOM (AIR-6.6.4), with TYCOM concurrence, shall determine the degree of engine repair capability of each facility. When there is a need to establish a repair facility, the requesting activity shall submit a letter to COMNAVAIRSYSCOM via the ACC/TYCOM under the procedures in [Chapter 5](#).

3.2.2.9.5 Naval aviation maintenance is dedicated to the application of RCM to in-service and future engines. RCM is a disciplined logic which establishes required PM tasks to enable equipment to perform

with a specific probability of success at the lowest possible total expenditure of resources for system operation and support over the life cycle. RCM is a continuous process which establishes initial PM tasks which are refined through application of AE. AE is required as a result of changing reliability values and additional information reflecting actual operating experience. Initial PM tasks are established through the application of a rigorous RCM decision logic. Data collected through AE, using threshold and opportunity-sampling programs, is used to refine the engine RCM Program.

3.2.2.9.5.1 RCM and AE must be continuing processes because stable design, specific failure knowledge, and life cycle costs are often not available at service introduction. Application of RCM to engines is based on technical knowledge derived from:

- a. Analysis of the cause(s) of engine malfunction(s).
- b. Threshold sampling.
- c. Engine measured performance relationships to hardware condition.
- d. Accurate data generation and analysis.

3.2.2.9.5.2 IMAs/FRCs will accomplish and document engine, engine accessory, and component teardown inspections per requirements established by the ISSC. The efforts will not be of a continuing nature nor will they be a requirement on all engines, engine accessories, and components received for processing. The ISSC will determine the frequency and hardware candidates based on the degree of knowledge available and magnitude of the problems specific hardware is causing. It is important that any activity involved in operation, maintenance, or transportation of gas turbine engines ensures the AESR for those gas turbine engines, required by this instruction, is maintained in proper order. Life limited parts should have sufficient time remaining to permit engine operation until the next scheduled major inspection. IMAs/FRCs with a NTCSS Optimized OMA NALCOMIS terminal will maintain the CM ALS records for gas turbine engines as required by this instruction.

3.2.2.9.6 Screening procedures for non-RFI engines, APUs, and SEGTEs are depicted in [Figure 3-18](#).

3.2.2.9.6.1 Engines, AESRs, and CM ALS AESR records will be thoroughly screened by the second and third-degree IMAs/FRCs to determine if the required maintenance action is within the capability of the receiving IMA/FRC. Screening and disposition action will take place within 10 days of receipt. If the required maintenance action is within the receiving IMAs/FRCs capability, the engine should be inducted into the repair cycle within 30 days of receipt. If the ACC elects to have the engine shipped to another facility for repair, an Action Taken Code 8 (BCM shop backlog) will be used on the MAF or WO. If, after screening, an IMA/FRC determines the required maintenance action is beyond their capability, they will attempt to determine the degree of capability required to return the engine to an RFI condition. The activity shall then request direction from the ACC/TYCOM for engine destination. This action shall be taken to ensure efficient transportation and repair site utilization. The engine will then be shipped to the repair activity (NAVAIR NOTE 4700) having the required capability. IMA/FRC personnel shall be responsible for coordinating with and ensuring the supporting supply activity is appraised of the destination point.

NOTE: Engines, engine accessories, and components will be documented on the MAF or WO with action taken BCM-7 (beyond authorized repair depth) when the depth of repair is beyond the activity's authorized repair level as indicated in applicable MIMs or directives.

3.2.2.9.6.2 First-Degree IMA/FRC. The first-degree gas turbine engine repair facility exists to provide fleet support in the areas of major engine repair and updating. Engines will be screened and inducted within the time limits as outlined above.

3.2.2.9.6.3 Containerized Engines. When a containerized engine has been dropped and inspection by local O-level and I-level activities determines the engine was probably not subjected to damage, the engine shall be given a thorough QA inspection after removal from the container. The inspection shall be visual and include the following: compressor and gas turbine area by borescope or fiber optic methods (when accessible); accessible compressor and turbine rotors to ensure free movement; and seals or bearings for damage. If no physical damage is noted, the engine shall undergo a thorough test cell run (including a vibration test and JOAP sample) and be reinspected and certified by an I-level QAR prior to installation in an aircraft.

3.2.2.9.6.4 The only engines considered beyond IMA/FRC capabilities (BCM-1, repair not authorized) are engines in one or more of the following categories:

- a. Engines with excessive damage due to fires or subjected to fire fighting chemicals internal to the engine.
- b. Crash damaged engines (after release by the safety board).
- c. Engines subjected to extreme mishandling, such as being dropped.
- d. Engines subjected to salt water immersion.
- e. Engines exhibiting excessive or extensive corrosion.
- f. Engines exhibiting massive oil contamination.
- g. Engines recommended for removal by an oil analysis laboratory when the specific cause of the impending failure cannot be positively determined and corrected.
- h. Engines with total gas path FOD of an extremely destructive nature requiring extensive parts replacement and high man-hour consumption.
- i. Engines requiring time compliance PPCs to parts that cannot be removed by the I-level.
- j. Engines requiring life limited part(s) removal that cannot be removed by the I-level.

3.2.2.9.6.5 Second and third-degree IMA/FRC responsibilities include the following:

- a. When repair capability is unavailable locally, the engine is preserved and turned in to the supporting supply activity for shipment to the nearest authorized repair activity directed by the ACC/TYCOM.
- b. In cases of engine failure(s) where an EI is requested, shipment of the engine(s) to the D-level repair facility will be expedited. Engines or accessories are not preserved if such action would destroy or conceal the evidence required by such inspection. In these cases, proper AESR or CM ALS AESR records entries must be made to indicate the reasons for not preserving the engine. The procedures in [Chapter 10](#), paragraph 10.9, must be used when requesting an EI.
- c. Accurate records must be maintained. The required SRC cards, EHRs, MSRs, and ASRs must be included with each engine AESR. If an engine is BCM, an entry must be made in the engine AESR stating the reason for BCM action, identifying all known discrepancies. IMAs/FRCs with CM ALS records for engines will ensure that tracked serialized components are accurately reflected and that all maintenance has been properly documented to correctly update the CM ALS. In the event of a BCM, ensure entry is made and all known discrepancies noted in CM ALS.

d. All engines and modules forwarded to other activities will have a full inventory of repairable and nonrepairable components, accessories, and appropriate reports. Additionally, all reportable components will be accompanied by the appropriate reports. Non-RFI components and accessories installed as a result of cannibalization will be clearly tagged and an appropriate AESR or CM ALS AESR entry made (refer to Chapter 15 for engine cannibalization documentation). When directed by the ACC/TYCOM to ship an incomplete engine, repairable components which have been removed, BCM'd, and placed on order will have a copy of the DOD Single Line Item Release Receipt Document (DD 1348-1) placed in the AESR to indicate shipment of retrograde (not applicable for CM ALS). In addition, enter the component retrograde document number in the Miscellaneous/History (OPNAV 4790/25A) record or CM ALS AESR miscellaneous history record.

NOTE: Engines must be shipped with all supporting components in place. It is possible for engine components to be damaged during shipment when all components that contribute to their structural support are not included.

e. Engines requiring repair within the capability of the IMA/FRC are processed using the applicable MIMs. IMAs/FRCs shall comply with all PPBs and PPCs within the scope of their assigned maintenance level, concurrently with repair, if the extent of engine disassembly permits compliance. PPC parts and kits designed for compliance at O-level maintenance will be obtained from the operating activities if such parts and kits were previously furnished but not incorporated.

f. Upon completion of repair, the engine is returned to service and entries are made in the Repair/Rework Record (OPNAV 4790/23A) of the AESR or CM ALS AESR. Indicate the degree of repair performed in the Description of Work block. In the Reference block identify the MRCs, instructions, or directives describing the action taken.

3.2.2.9.6.6 First-degree repair activity responsibilities include the following:

NOTE: When Marine Corps activities having first-degree repair capability are transferred, reassignment of the first-degree function will be requested from COMNAVAIRSYSCOM via the cognizant ACC/TYCOM.

a. All activities having first-degree capabilities will, upon receipt of an engine, screen the engine and AESR or CM ALS AESR to determine if the engine is to be repaired or forwarded to a D-level repair facility. The engine will be forwarded to the depot if required repair falls into one of the IMA/FRC BCM-1 categories.

b. If an engine requires D-level repair, it is inspected for preservation, represerved if required, and turned in to the supporting supply activity for shipment to the designated depot. An appropriate AESR or CM ALS AESR entry is made stating the reason the engine is recommended for D-level repair and listing all known discrepancies.

c. Engines forwarded to D-level or other repair activities will have a full inventory of components and accessories. Non-RFI components and accessories installed as a result of cannibalization will be clearly tagged and an appropriate AESR or CM ALS AESR entry will be made (refer to Chapter 15 for engine cannibalization documentation). When directed by the ACC/TYCOM to ship an incomplete engine, repairable components which have been removed, BCM'd, and placed on order, will have a copy of the DOD Single Line Item Release Receipt Document (DD 1348-1) shipping document placed in the AESR (not applicable for CM ALS AESR) to indicate shipment of retrograde. In addition, enter the component retrograde document number on the Miscellaneous/History (OPNAV 4790/25A) or CM ALS AESR Miscellaneous/History record.

d. Engines requiring repair within the capability of the IMA/FRC are processed using instructions set forth in the applicable MIM.

e. IMAs/FRCs shall comply with all PPBs and PPCs concurrently with performing a repair if the extent of engine disassembly permits compliance. PPC parts and kits designed for incorporation at the O-level will be obtained from operating activities if such parts and kits were previously furnished but not incorporated.

f. Upon completion of a repair, the engine is returned to service and an entry is made in the Repair/Rework Record (OPNAV 4790/23A) of the AESR or CM ALS AESR. Indicate degree of repair performed in the Description of Work block. In the Reference block identify the MRCs, instructions, or directives describing the action taken.

g. ACCs/TYCOMs, controlling agents for the Three-Degree Gas Turbine Repair Program, shall:

(1) Ensure fleet maintenance activities follow the screening sequence procedures for non-RFI engines.

(2) Nominate IMAs/FRCs to perform a selected degree of maintenance for specific engines.

(3) Annually review the status and requirements of repair activities and forward any recommended changes to COMNAVAIRSYSCOM.

(4) Implement and direct engine RCM procedures as they apply to IMAs/FRCs within their command responsibility.

3.2.2.10 Auxiliary Power Unit (APU) Management and Support Equipment Gas Turbine Engine (SEGTE) Management

3.2.2.10.1 The objective of this program is to provide the policy and procedures for maintenance of APUs and SEGTEs under the three-degree repair concept per NAVAIR NOTE 4700. Under this concept, each APU and SEGTE I-level MIM identifies specific maintenance actions as either first-, second-, or third-degree functions. These functions are determined largely by degree of difficulty and recurring frequency. Selected IMAs/FRCs are assigned to provide a specific degree of support for specific APUs and SEGTEs. IMA/FRC assignments are in NAVAIR NOTE 4700.

3.2.2.10.2 The Maintenance Plan will designate three-degree I-level repair functions for removed APUs and SEGTEs. APUs and SEGTEs assigned a three-degree repair function will be maintained in APU SEGTE (Work Center 412). Installed SEGTEs will undergo O-level maintenance plus preservation or depreservation in the SE Gas Turbine Repair Shop (Work Center 91A).

3.2.2.10.2.1 APU and SEGTE inspections are accomplished under the applicable MRCs upon expiration of the established interval. A major APU or SEGTE inspection is a comprehensive inspection performed to determine the material condition of the APU or SEGTE. This inspection is often performed with the APU or SEGTE removed from the enclosure, but may be accomplished on certain installed APUs and SEGTEs using a borescope or other inspection aids as directed in the MRCs. Major APU or SEGTE inspections are performed by the supporting IMA/FRC unless directed otherwise by the ACC. APU and SEGTE inspections are accomplished during first-degree repair; therefore, APUs and SEGTEs installed following first-degree repair are zero timed for inspection purposes. MRCs prepared to the latest specifications are aligned with the level of maintenance performing the inspections. All tasks performed on installed APUs and SEGTEs by IMAs/FRCs are in the phase, daily, or servicing special MRCs. APU and SEGTE MRCs are provided for IMA/FRC use.

3.2.2.10.2.2 The IMA/FRC shall screen AESRs or CM ALS AESRs and perform appropriate inspections on all removed APU and SEGTEs requiring unscheduled I-level repair. IMAs/FRCs with CM ALS for APUs or SEGTEs will ensure that tracked serialized components are accurately reflected in the CM ALS and that all maintenance has been properly documented in CM maintenance task to correctly update the ALS.

3.2.2.10.2.3 APUs and SEGTEs not installed in an aircraft or enclosure do not accumulate time for inspection purposes.

3.2.2.10.2.4 APU and SEGTE screening sequence procedures are given in [Figure 3-18](#).

3.2.2.10.2.5 RFI APUs and SEGTEs received from supply shall have AESRs or CM ALS AESRs screened to determine which inspections, if any, have been performed and when the next inspection is due.

3.2.2.10.2.6 APU and SEGTE documentation procedures. The enclosure is considered to be the end item when work is performed on SEGTEs at an IMA/FRC (Work Center 91A); therefore, APUs and SEGTEs sent to IMA/FRC (Work Center 412) for inspection or repair must have a MAF or WO turn-in document initiated.

NOTE: All documents, forms, and maintenance records for the Air Start Unit (MSU-200NAV) will be maintained in the SE Custody and Maintenance History Record (OPNAV4790/51). There is no requirement for an AESR.

3.2.2.11 Interservice Support Program

Interservice support is rework of repairable components performed by one service for another. Specific program responsibilities are in **R** OPNAVINST 4790.14.

3.2.2.12 Fleet Air Introduction Liaison Survival Aircrew Flight Equipment (FAILSAFE) Program

The FAILSAFE Program is intended to ensure proper fleet introduction of new or modified ALSS. FAILSAFE is sponsored by COMNAVAIRSYSCOM (AIR-4.6) and implemented by the aviation physiology training units to supplement formal training.

3.2.2.13 Naval Ordnance Maintenance Management Program (NOMMP)

3.2.2.13.1 OPNAVINST 8000.16 issues the policies, procedures, and responsibilities for activities supporting or performing ordnance maintenance. It encompasses all Navy and Marine Corps activities concerned with the use, maintenance, overhaul, production, and support of naval ordnance weapons and associated equipment. In addition to specifying maintenance processes, OPNAVINST 8000.16 addresses interactive programs including maintenance management, maintenance engineering, fleet support, inventory management, asset and fiscal resources and associated reporting, and MIS. The ordnance weapons and equipment addressed in OPNAVINST 8000.16 include, but are not limited to air launched missiles, airborne ordnance and ammunition, AWSE, AAE, aircraft guns, nonrecoverable UAVs, targets, weapons handling procedures, and the Airborne Weapons Performance Evaluation and Reporting Program.

3.2.2.13.2 NTCSS Optimized OMA NALCOMIS provides the fleet an improved capability to manage AAE, aircraft guns maintenance, configuration, and tracking usage information for NOMMP equipment that have CM ALS AESRs, SRCs, TCRs, and EHRs. O-level and I-level activities that have NTCSS Optimized OMA NALCOMIS for AAE and aircraft guns have the capability to share maintenance and configuration data up-line in near real-time and receive automated maintenance planning data updates. CM will:

- a. Provide accurate listings of all components on the AAE or aircraft guns that are considered tracked items.
- b. Track usage for life limited components.

- c. Maintain configuration history for tracked items.
- d. Forecast scheduled maintenance.

3.2.2.13.3 IMAs/FRCs with CM ALS records for AAE and aircraft guns shall ensure that the tracked serialized components are accurately reflected in the CM ALS and all maintenance tasks have been properly documented to correctly update CM ALS SRCs and CM ALS EHRs for AAE and aircraft guns.

NOTE: Full scale aircraft targets will be reported.

3.2.2.14 Laser Hazard Control Program

The widespread use of lasers has increased the probability of exposure to/injury from laser radiation. Activities operating and maintaining laser equipment shall establish a Laser Hazard Control Program per OPNAVINST 5100.27/MCO 5104.1.

3.2.2.15 Warranty Program

3.2.2.15.1 Section 2403 to 10 of the U.S.C requires DOD to obtain warranties in contracts awarded after 1 January 1985 for the acquisition of weapon systems equipment. Each contract must contain warranties covering design and manufacturing requirements, defects in materials and workmanship, and essential performance requirements. These warranties will provide ample time, after delivery of the weapon system equipments, for the government to assess achievement of specification requirements and ensure the equipment is free from defects in materials and workmanship. The PMA shall examine the value of warranties on major systems and pursue such warranties when appropriate and cost-effective. When appropriate, the PMA shall incorporate warranty requirements into major systems contracts per FAR 46.7. If a warranty is cost effective and approved by the chief of the contracting office, each contract must contain warranties covering design and manufacturing requirements, defects in materials and workmanship, and essential performance requirements. The contract shall include a requirement to identify the warranty administration process. These warranties are to provide ample time, after delivery of the weapon systems equipments, for the government to assess achievement of specification requirements and ensure the equipment is free from defects in materials and workmanship.

NOTE: Section 847 of the FY98 Defense Authorization Act repealed the 10 USC2403 requirement for weapon system warranties.

3.2.2.15.2 Warranted items will be repaired at the maintenance level which would normally repair such items as determined by the logistics support analysis process if they were not under warranty. From a fleet maintenance perspective, warranty procedures will:

- a. Allow repairs of warranted items to be accomplished in the same manner as repairs to nonwarranted items, with only minor changes to MAF documentation procedures. For example, normal repair of warranted items will be documented on MAFs using special indicators to identify repair of a warranted item was accomplished.
- b. Allow expeditious repair of warranty items to occur in the same manner as nonwarranted items.
- c. Reserve the use of PQDRs at the O-level and I-level for their intended purpose, for example, to document apparent deficiencies in construction or manufacture of repairables and consumables, instead of documenting failures of items simply because they were under warranty.
- d. Require the determination of any payback to the Navy to be the result of contractual liaison between COMNAVAIRSYSCOM, NAVICP, other Navy field activities, and applicable manufacturer personnel.

Such determination will be based on MDS data supplied by COMNAVAIRSYSCOM (AIR-6.8.5) and will be made after the fact, for example, after repairs have been made by fleet maintenance personnel.

3.2.2.15.3 The ability of the maintenance activity to identify warranted equipment will generally depend upon whether the equipment is considered CFE or GFE. Aircraft and engine warranties cover the basic aircraft or engine, and the CFE. Warranty markings and information are documented in the Miscellaneous/History section of the aircraft logbook or engine AESR. For components that are tracked in NTCSS Optimized NALCOMIS, the CM ALS shall perform this function. GFE will have a distinct and separate warranty and will have the warranty information marked on the equipment and on any associated record cards or CM ALS. GFE will usually have a WUC of 51000 or higher. [Chapters 15](#) (O-level) and [16](#) (I-level) contain information on documenting warranty information on the MAF.

3.2.2.16 Mobile Facility (MF) Program

3.2.2.16.1 A MF is a relocatable tactical shelter. The principal application of a MF is to provide relocatable housing for aviation weapon system maintenance and SE maintenance functions. MFs are also used to contain aviation operational and tactical functions, such as those required in connection with aerial photographic processing, automatic data processing, and metrological functions. MFs are used on board ship as well as ashore. Management responsibility of the MF Program is assigned by NAVAIRINST 13670.1.

3.2.2.16.2 Records for accountability, allowances, and inventory are:

a. Accountability. The primary accountability for aviation MFs and major related equipment is the LIR. An LIR will be maintained on each MF or for a complex of MFs. The LIR is maintained similar to the aircraft logbook and inventory records, and is divided into two parts. Part I contains the SE Custody and Maintenance History Record (OPNAV 4790/51). As a minimum, the form will be maintained for each MF shell and air conditioner/heater. Part II is the inventory record section and contains (insert) Part II Inventory (OPNAV 4790/74), Mobile Facility Inventory Record - Equipment List (OPNAV 4790/73A), and Mobile Facility Record of Shortages (OPNAV 4790/75A).

NOTE: An SE Custody and Maintenance History Record (OPNAV 4790/51) will be maintained on running gear, load banks, frequency converters, and generators. When these items are shipped with the MF, or complex of MFs, their OPNAV 4790/51 will be placed in the MF LIRs Part I.

b. Allowances. Allowances for Marine Corps MF equipment items are in the Table of Basic Allowances, NAVICP 00-35T-37-4, Part 6. The allowance document for Navy MFs is the mobile facility page of the WSPD.

c. Inventory/Receipt/Transfer. Inventory reporting of in-use MF equipments shall originate with the physical custodian. Annual inventory reports shall be consolidated by ACCs/TYCOMs, and then forwarded to COMNAVAIRSYSCOM. Records of in-use assets are required by COMNAVAIRSYSCOM for replenishment planning and forwarding of inventory data to higher authority. Equipment custodians shall report, by naval message, all transfers and receipts of MFs and major related equipment. MFs will not be transferred with inventory shortages without approval of the appropriate ACC/TYCOM/COMMARFORCOM or COMMARFORPAC. Detailed instructions on policy, responsibility for management, and required reports may be found in NAVAIRINST 13670.1, ACC/TYCOM, and COMMARFORCOM/COMMARFORPAC instructions.

3.2.2.16.3 The Mobile Facility Logbook and Inventory Record is a loose-leaf log contained within a separate cover and punched for insertion in the logbook ring binder. Special care must be exercised to ensure the forms are not lost when the record is removed from the logbook.

3.2.2.16.3.1 The LIR is initiated when an MF is internally configured by the industrial activity. The LIR accompanies the MF at all times and is maintained by the activity having custody of the equipment.

3.2.2.16.3.2 The LIR is maintained under the General Instructions Separator (OPNAV 4790/62) of the record. Since it is in loose-leaf form, the full identification data and SERNO are inserted on each page in the spaces provided to ensure ready identification when pages are removed for entries or for any other reason. Required forms are listed in the Table of Contents (OPNAV 4790/61).

3.2.2.16.3.3 Additional forms for each section of the LIR may be ordered per Appendix B.

3.2.2.16.3.4 The following separators and forms make up the LIR. A short description of each form follows:

a. General Instructions (OPNAV 4790/62) (Figure 3-19). This separator is maintained as a permanent part of the record and provides instructions concerning the origination, custody maintenance, and disposition of the LIR.

b. Table of Contents, Part I (OPNAV 4790/63) (Figure 3-20). This separator is for the filing of SE Custody and Maintenance History Records (OPNAV 4790/51) upon transfer of the MF.

c. Table of Contents, Part II (OPNAV 4790/74) (Figure 3-21). This provides a list of separators and forms used in Part II of the LIR.

d. Inventory Record - Equipment List (OPNAV 4790/73A) (Figure 3-22). This provides a record of equipment installed or in-use, and provides an inventory record for inventory reports.

e. Record of Shortages (OPNAV 4790/75A) (Figure 3-23). This provides a record of shortages authorized by the appropriate ACC/TYCOM/COMMARFORCOM/COMMARFORPAC upon transfer or receipt of an MF.

3.2.2.17 Fleet Readiness Center (FRC) Customer Liaison Program

3.2.2.17.1 Each FRC maintains a Customer Liaison Program to provide on-site contact with its customers, establish communications links, and encourage feedback information. The Quality Department within each FRC is the focal point for this program. Customer service was instituted to provide support to fleet aviation units in their technical and material maintenance problems. This service is extended to all other aviation operating and maintenance activities and units. Assistance may be requested by the IMA from the COMFRC activity through the use of a Work Request Customer Service (OPNAV 4790/36A) form (Figure 3-24).

3.2.2.17.2 The policies here apply to all operation, maintenance, or material support of aeronautical material and equipment. Customer service required for other than aviation type work will be accomplished by the D-level activity provided funds are made available to cover the cost of such service and manpower is available without jeopardizing aviation type workload.

3.2.2.17.3 The responsibility for the repair of aeronautical components and equipment to various maintenance activities within the Navy and Marine Corps is assigned in paragraph 3.1.1. Particular emphasis is placed upon the repair support responsibilities of IMAs/FRCs. These activities must perform all assigned repair functions within their capability. Emphasis must also be placed on developing the necessary repair capability within these IMAs/FRCs. Customer service is intended to supplement, not replace, existing supply and I-level support. To avoid duplication of effort in supply and maintenance activities, requests will be submitted or accepted only from IMAs/FRCs. Further, each request will certify the required function is beyond the capability of the supporting IMA and a replacement could not be readily obtained.

3.2.2.17.4 As circumstances warrant, assistance will be provided through customer service for these requirements. Minor repair will include only the correction of specific discrepancies or replacement of minor malfunctioning parts requiring special tools, test equipment, or facilities not available at IMAs/FRCs. Material submitted for customer service, requiring only limited processing or check and test, shall not be processed beyond the depth stated on the work request or that necessary to return the component to RFI condition.

3.2.2.17.4.1 The program for the scheduled calibration of PME is not considered a part of customer service within the meaning of this instruction. However, calibration of equipment on an unscheduled basis to preclude NMCS/PMCS and work stoppage condition may be authorized by ACC/TYCOM per [Chapter 6](#).

3.2.2.17.4.2 Requests from an IMA/FRC for customer service shall be limited to the services not involving repairs within the capability of the requesting IMA/FRC. Specifically, these services will be as follows:

- a. Engineering and consultation services.
- b. Plating, magnetic particle inspection, heat treatment, and machinist services.
- c. Chemical, physical, and metallurgical laboratory testing.
- d. Check and test of equipment and components.

3.2.2.17.4.3 Assistance required by the IMA may be requested from COMFRC activities to complete components delayed in process due to lack of facilities for check and test, or for processing not normally required, for example, heat treatment, plating, magnetic particle inspection, and machine shop. Such assistance may be requested by the IMA from FRC activity through the use of a Work Request Customer Service (OPNAV 4790/36A) form. All other customer service requests originated within the IMA/FRC will be transacted through the ASD.

3.2.2.17.4.4 Materials beyond the repair capability of the IMA, including the manufacture of parts, shall be referred to the ASD for further action. ASD shall determine the system availability for NMCS, PMCS, and work stoppage items prior to submitting requests for FRC customer service. If it is determined customer service support is required, the ASD shall notify the IMA to prepare a Work Request Customer Service (OPNAV 4790/36A) describing the specific work to be accomplished. ASD is responsible for transportation of customer service work between the IMA and FRC activity. It is also ASD's responsibility to accumulate and maintain statistics, such as end item usage, and supply data required to ensure continued fleet support.

3.2.2.17.4.5 Extensive Repairs and Overhaul. Aircraft components and SE requiring extensive repairs or overhaul, including items causing NMCS, PMCS, or work stoppage conditions, shall not normally be processed by customer service. However, when situations warrant, and the item on which customer service is requested is not on the BO-8, or Hi-Burner, COMNAVAIRSYSCOM (AIR-6.0), in coordination with the cognizant Type Wing, may authorize customer service on these items to preclude NMCS, PMCS, or work stoppage conditions.

3.2.2.17.5 Engineering Drawings and Associated Data. Engineering drawings and reference documents made by the designers of weapon systems and equipment are procured from those designers and distributed to D-level maintenance activities. They are used for maintenance and repair, making parts not stocked in the supply system, emergency fabrication, engineering analysis and investigation, and for in-house redesign. The technical manual system, the spare parts provisioning system, and the entire logistic support system work on the principal that copies of engineering drawings will be available at D-level activities. They are normally available on microfilm. When individual drawings are required to support maintenance at the I-level, they can be obtained from either the nearest FRC or NATEC. Technical manuals, not drawings, are the normal source of information necessary for O-level and I-level maintenance. Specific instructions for ordering

copies of drawings are in NAVAIRINST 5600.15. Many of these drawings are also available at activities identified under the Rapid Acquisition of Manufactured Parts Program.

3.2.2.18 Reliability Centered Maintenance (RCM) Program

3.2.2.18.1 RCM, an analytical process, is used to identify PM requirements to realize the inherent reliability of systems and equipment at minimum expenditure of resources. PM tasks are either scheduled inspections to determine if the equipment is, and will remain in, satisfactory condition until the next scheduled inspection; scheduled removal of items which will exceed life limits; or engineering designed servicing and lubrication tasks. The RCM process is used to identify and develop initial PM task requirements and to refine PM tasks that are found during in-service use to be less than optimal. AE is a major contributor in the refinement of PM tasks and task intervals. It establishes operational age-reliability relationships of in-service systems and equipment by evaluating operating data, analyzing MDS failure data, and assessing inspection findings. RCM and AE form a continuous life cycle process. Specific requirements and procedures for RCM analysis are in NAVAIR 00-25-403 and DOD Directive 4151.18.

3.2.2.18.2 Naval aviation maintenance is dedicated to the application of RCM to in-service and future aircraft, engines, aircrew systems, weapon systems, aircraft launch and recovery equipment, and SE. RCM is a disciplined logic which establishes required PM tasks that enable equipment to perform with a specific probability of success at the lowest possible total expenditure of resources for system operation and support over the life cycle. RCM is a continuous process, which establishes initial PM tasks, refined through application of AE. AE is required as a result of changing reliability values and additional information reflecting actual operating experience. Initial PM tasks are established through the application of a rigorous RCM decision logic. Data collected through AE, using threshold and opportunity-sampling programs, is used to refine the engine PM Program. RCM and AE must be continuing processes because stable design, specific failure knowledge, and life cycle costs are often not available at service introduction.

3.2.2.19 Service Life Management Programs

3.2.2.19.1 ASPA Program. The ASPA Program established a process to evaluate the material condition of fleet aircraft. This information is used to more effectively plan D-level maintenance programs. The objective was satisfied during implementation, resulting in rework of virtually all requirements generated by the CNO ASPA predictor model. Condition evaluations provide the data used by the ASPA predictor model to generate the FRC requirement statement. Analysis of evaluation data improves awareness of the relationship between general material condition, readiness, and restoration cost. This analysis leads to improved rework selection criteria and improved ability to estimate and manage the cost and readiness impact of deferring aircraft rework. OPNAVINST 3110.11, NAVAIRINST 4730.10, and instruction contain additional details and documentation procedures on this program.

NOTE: Other aircraft T/M/S have developed special programs to address their specific standard rework needs. IMC/P, PDM, MCI replaces ASPA/SDLM and related program specifics by T/M/S

3.2.2.19.1.1 ASPA evaluation is a D-level evaluation of aircraft general material condition. The evaluation is performed by a certified ASPA evaluator and consists of record and logbooks analysis and a physical aircraft examination. The ASPA evaluator applies an LES prepared by the ISSC/LMTC to conduct this evaluation. The LES has been developed considering all factors known to affect the material readiness of the aircraft beyond O-level access or maintenance capability. The LES establishes criteria upon which the ASPA evaluator bases their recommendation that the aircraft:

- a. PED/OSM be adjusted 12 months (or equivalent flight hours) beyond the current PED or eighteen OSM from date of ASPA inspection, whichever is less.
- b. Be inducted for rework or preservation not later than 90 days after the current PED.

- c. Be inducted into rework immediately and the service tour be terminated.

3.2.2.19.1.2 The ASPA evaluation is supported by the reporting custodian. This support requirement is normally documented on an ASPA conditional MRC and is not intended to exceed the requirements for the Mobilization Material Condition Inspection. OPNAVINST 3110.11 requires an ASPA evaluation between 6 months prior to and 3 months after PED of each ASPA aircraft to determine its general material condition relative to established induction criteria. The 3-month window after PED can only be allowed when no D-level structural life limited item will expire during the period. This determination can be made by screening the aircraft logbook or by contacting the ISSC if information is not available locally. The criteria are based on general material condition and are applicable throughout aircraft service life without regard to duration of service tour. Any aircraft that receives an initial ASPA PED revision shall require additional ASPA inspections as a minimum for any further PED revision. As a general guideline no more than 18 months should elapse between the ASPA inspection and the resulting adjusted PED.

3.2.2.19.1.3 Aircraft will not normally undergo an ASPA evaluation while embarked on a ship. Requests for exception authority shall be directed to CNO (N781C) via the ACC/TYCOM. The reporting custodian must consider resource and readiness impacts of ASPA in executing these procedures. Total impact could include: maintenance man-hours required to support the evaluation; facility and equipment requirements of the ASPA evaluator; facilities and equipment needed to correct defects classified as Critical; availability of essential materials and aircraft out-of-service time for examination and repair. Emphasis shall be given to minimizing these impacts in development of the evaluation schedule. Reporting custodians should attempt to schedule the ASPA evaluation to coincide with scheduled maintenance action(s) having disassembly requirements similar to ASPA. ACCs/TYCOMs should establish procedures to coordinate the greatest practicable number of evaluations of similar aircraft at a site or region during an evaluator visit. However, not more than one aircraft should normally be scheduled per reporting activity in the event a depot critical defect is discovered and extensive maintenance is required. Those activities with complements of more than 30 aircraft may schedule up to 10 percent of total complement simultaneously for ASPA evaluation.

3.2.2.19.1.4 Repair of ASPA Defects

3.2.2.19.1.4.1 The ASPA evaluator shall provide the reporting custodian a signed copy of the ASPA Evaluation Record. This record includes all discrepancies discovered during the evaluation, classified by assessed defect and maintenance level. An authorized representative of the reporting custodian signifies concurrence with these findings by signature. As part of the exit brief, the reporting custodian shall provide the ASPA evaluator with the JCN assigned to the ASPA support MAF or WO and the ASPA preparation man-hours expended. The reporting custodian shall initiate MAFs or WOs (When Discovered (WD) Code: "U") to correct all O-level or I-level discrepancies. All Critical defects require correction prior to release for flight, regardless of assessed maintenance level or general material condition. The ASPA evaluator shall act as critical repair coordinator until relieved by the leader of the depot repair team.

3.2.2.19.1.4.2 The ACC/TYCOM shall direct and control procedures for requesting D-level emergency field repair consistent with FRC management procedures established by COMNAVAIRSYSCOM (AIR-6.0). This may include repair of D-level Major defects on aircraft not recommended for SDLM/PDM induction. The ACC/TYCOM may decline a recommendation for PED/OSM adjustment considering operational and readiness impacts inherent in repair of identified defects. OPNAVINST 3110.11 requires rework induction not later than 90 days after the current PED when the ASPA evaluation determines the aircraft general material condition satisfies rework induction criteria.

3.2.2.19.1.5 The following ASPA discrepancy definitions are considered to be a subclass of the more general DEFECT definitions contained in [Appendix A](#).

a. DEFECT, CRITICAL - A defect that constitutes a hazard to airworthiness. The condition is such that corrective action is required prior to release of the aircraft for flight. Coordination with ISSC Engineering is required to establish restricted flight conditions and operating limitations which would permit safe flight of the aircraft to a depot facility.

b. DEFECT, MAJOR - A defect that materially reduces the use of the unit or part for its intended purpose. Aircraft is safely flyable but requires major repair within a specified time frame.

c. DEFECT, MINOR - A defect that does not materially reduce the use of the unit or part for its intended purpose. Deferral of corrective action until the next depot examination is not likely to impose an unequal economic penalty.

NOTE: Aircraft acceptance inspections and transfer inspections require an aircraft logbook and AESR entry on the inspection page titled "Conditional". Activities with NTCSS Optimized NALCOMIS will enter acceptance/transfer and ASPA inspections in the CM ALS Inspection Record of the aircraft and AESR. Authority is this instruction or applicable MRCs. Acceptance and transfer inspections for equipment requiring AESRs not installed as part of the aircraft logbook or CM ALS are not required. Hydraulic fluid sampling results require a logbook entry on the Miscellaneous/History page or CM ALS Miscellaneous/History record.

3.2.2.19.2 The Conversion In Lieu Of Procurement Program includes aircraft conversion, service life extension, update, expansion or change of mission capability, and improvement of combat capability. The primary purpose of the program is to provide an acceptable alternative to procurement of new aircraft, while meeting or maintaining force levels. OPNAVINST 3110.11 contains additional details on this program.

3.2.2.19.3 The MCAPP Program includes incorporation of D-level technical directives, inspection of aircraft for corrosion damage and repair as required, and evaluation of the material condition of the aircraft paint system. Other repairs will be made when beyond the capability of O-level or I-level maintenance or when safety of flight is a consideration. This program is sponsored by CNO (N781).

3.2.2.19.4 The RILOP Program is the removal of installed equipment from a stricken or damaged aircraft or engine prior to disposal. Equipment to be removed is determined by an NAVICP master save list. [Chapter 8](#) provides additional information. CM ALS tracked items will have an entry made stating removed for RILOP. Upon disposition of the removed components the CM ALS will be transferred to the designated site.

3.2.2.19.5 The SLEP Program is the restoration or replacement of primary aircraft structures that have reached fatigue life limits. SLEP is performed for the express purpose of establishing an extended service life beyond the original design. COMNAVAIRSYSCOM determines the duration of the service life extension resulting from the accomplishment of SLEP. OPNAVINST 3110.11 contains additional details on this program.

3.2.2.19.6 The SAFE Program provides for accurate fatigue life tracking of individual aircraft component service life limits specified as fatigue indexes rather than flight hour limits. Tracking fatigue indexes is predicated on the submission of flight loads, launch, and landing data per NAVAIRINST 13920.1 and will permit use of time compliances for component modification, rework, and replacement to accommodate individual aircraft usage rates and eliminate schedule inflexibility or conservatism associated with specifying life limits in terms of flight hours. Consequently, a more accurate analysis of fleet aircraft will result in better planning with a more timely induction for structural rework. The SAFE Program Reports are published quarterly by COMNAVAIRSYSCOM (AIR-4.3) and available at <https://home.navair.navy.mil/safe>.

3.2.2.19.7 The Structural Life Limits Program provides policy and assigns responsibilities to assure continuing structural safety of fixed and rotary wing aircraft throughout their assigned service life. All levels of maintenance are responsible for ensuring structural life limited items and components do not exceed the

specified limits per NAVAIRINST 13120.1 for fixed wing and NAVAIRINST 13130.1 for rotary wing aircraft. Structural modification or alteration of life limited items and components may be changed by applicable TDs but not without determining the effect on aircraft assigned service life and approval by COMNAVAIRSYSCOM (AIR-4.0).

3.2.2.19.8 The PACE Program provides an on-condition inspection developed to address special requirements of F/A-18 series aircraft. The inspection occurs at the end of a set operational service period, within a 9-month window. Details of program administration are in OPNAVINST 3110.11. Evaluation specifics are in an LES from FRC North Island. The evaluation is performed by D-level P&E personnel and is requested per [paragraph 3.2.2.24](#) for P&E services. The results of PACE determine the requirement for induction into Modification, Corrosion, and Paint Program, which is done by D-level artisans. Documentation required of the aircraft custodian is essentially equivalent to aircraft administered by ASPA.

NOTE: Other aircraft T/M/S have developed special programs to address their specific standard rework needs. IMC/P, PDM, or MCI replace ASPA/SDLM and related program specifics by T/M/S.

3.2.2.19.9 The PDM Program replaces ASPA/SDLM for a specific T/M/S aircraft. PDM divides a larger SDLM specification/work package into smaller, and more frequent, phases for Depot scheduling and completion to decrease periods of aircraft unavailability. Upon FID, the aircraft will be inducted into scheduled D-level maintenance (Phase 1, Phase 2, etc.) within a window as detailed in OPNAVINST 3110.11.

3.2.2.19.10 The IMC/P Program replaces ASPA/SDLM and PACE/MCAPP for a specific T/M/S aircraft. This scheduled D-level maintenance emphasizes a FID and may segregate the service tour length (OSP) into smaller periods of POI and PMI. The goal is to ensure that the appropriate level of maintenance performs these tasks at the right location and interval that will produce results in the highest degree of availability and readiness at the lowest overall life cycle cost. Activities shall ensure IMC/P is performed per NAVAIRINST 4790.33 and OPNAVINST 5442.2.

3.2.2.19.11 MCI replaces ASPA/SDLM for a specific T/M/S aircraft that have been designated by OPNAV N781 as nearing the end of their service life. These aircraft are no longer funded for standard rework. The purpose of MCI is not a PED adjustment, but to ensure airworthiness for an additional operational flying period specified by OPNAV. Upon review and recommendation by the NAVAIR-managed Airframes Management Board, a PED-based standard rework plan is replaced by an annual D-level inspection to ensure airworthiness and satisfactory material condition.

3.2.2.20 Taxi/Turnup/Auxiliary Power Unit (APU) Licensing Program

3.2.2.20.1 Taxi Licensing. COs may issue Taxi/Turnup/APU License (OPNAV 4790/162) ([Figure 3-25](#)) to senior enlisted personnel under the following conditions:

a. Fixed Wing. The nominee has undergone a comprehensive training program using the applicable NATOPS manual and has satisfactorily completed a written and operational test developed by the unit NATOPS Officer and administered by a unit pilot NATOPS instructor.

b. Helicopter. Only individuals authorized to fly helicopters shall be permitted to taxi.

WARNING: AIRCRAFT SHALL BE PROPERLY SECURED PRIOR TO ANY MAINTENANCE TURNS PER T/M/S MIM/NATOPS. HELICOPTER ROTORS MUST NOT BE ENGAGED DURING ENGINE TURNS.

3.2.2.20.2 Turnup (low/full power turnup) Authorization. COs may issue engine/APU turnup authorization ([Figure 3-25](#)) for either function to enlisted personnel. The CO may not delegate the authority to sign Taxi/Turnup/APU authorizations. Upon recommendation of the unit MO, the nominee will undergo a

comprehensive training program. The nominee must be qualified per the applicable NATOPS manual and satisfactorily complete a written and operational examination developed by the unit's NATOPS officer and administered by a unit pilot NATOPS instructor or qualified FCF pilot. QARs may administer written examinations. For activities that have flight engineers/crew chiefs, the unit's flight engineer/crew chief NATOPS evaluator/instructor, under the direction of the NATOPS officer, may administer a written and operational examination. NATOPS qualified flight engineers/crew chiefs must satisfactorily complete the written and operational examination to be considered qualified to turnup aircraft.

3.2.2.20.3 As a minimum, annual requalification is required to maintain authorization for taxi licensing and engine/APU low/full power turnup authorization.

3.2.2.21 Aeronautical Equipment Welders Program

3.2.2.21.1 Aeronautical welders shall only weld on equipment, components, and items manufactured from the group(s) of metal(s) for which they are currently certified for and for which weld repairs are authorized by applicable technical publications or directives. Group(s) of metal(s) that require separate and distinct certification are specified in NAVAIR 01-1A-34. Separate certification is also required for oxyfuel brazing process.

3.2.2.21.2 Initial certification is attained by:

a. Satisfactory completion of Navy training course(s):

(1) Aircraft/Support Equipment Basic Welding Certification course (Course N-701-0007).

(2) Oxyfuel/Shielded Metal Arc Welder Certification course (Course N-701-0009).

b. Documented satisfactory completion of equivalent non-Navy training per NAVAIR 01-1A-34 and satisfactory completion of recertification testing.

3.2.2.21.3 Certified welders shall complete the minimum required OJT per NAVAIR 01-1A-34 prior to being allowed to weld on aeronautical components. The Work Center Supervisor, QAR, and the MO shall review/approve the new welder's OJT package.

3.2.2.21.4 Recertification is normally accomplished by locally producing acceptable test welds and submitting those test welds to the nearest authorized welding examination and evaluation facility. Examination and evaluation facilities shall complete required testing of test weld specimens and provide test results and recertification documentation (as appropriate) to the welder's command within 30 days of test weld(s) receipt. Detailed procedures for obtaining required test weld plates/tubes, production and submission of test welds, and documentation are in NAVAIR 01-1A-34. The recertification interval for I-level aeronautical welders is 1 year for both military and civilian personnel. Recertification can be accomplished by either:

a. Sending all required test plates/tubes to the nearest Materials Engineering (AIR-4.3.4) Laboratory for evaluation.

b. Sending the individual to the nearest welding school recertification class.

3.2.2.21.5 Proficiency demonstration and sustained certification requires documentation from the Work Center Supervisor or a QAR that the welder has welded at least 1 ferrous and 1 non-ferrous item every 30 days in any process. This period may be extended to 180 days if the welder has welded in another process, such as gas metal arc welding or shielded metal arc welding. Additional requirements are specified in NAVAIR 01-1A-34. Failure to maintain proficiency for 90 days in any welding process/group(s) of metal will terminate current certification in that/those process/group(s). ACC/TYCOMs may extend certification of

welders for a maximum of 90 days in cases where test welds have been submitted but results and recertification documentation have not been received from the cognizant examination and evaluation facility.

3.2.2.21.6 Welders whose test specimens fail to meet minimum requirements are allowed one retest. Retest requires submission of a double set of test welds of the failed group(s) of metal(s) to the same welding examination and evaluation facility that failed the first test weld(s). Welding examination and evaluation facilities shall forward double sets of test plates to the failed welder's command concurrently with notification of failure. Retest welds must be submitted within 30 days of receiving notification of failure of first test weld(s). Failure of any test welds to meet the minimum requirements will require the welder to satisfactorily complete the following course(s) (as applicable) to recertify:

- a. Aircraft/Support Equipment Basic Welding Recertification course (Course N-701-0008).
- b. Oxyfuel/Shielded Metal Arc Welder Recertification course (Course N-701-0010).

3.2.2.21.7 NAVAIR 01-1A-34 contains additional information and guidance relative to qualification, certification, recertification, and employment of aeronautical welders. However, it is a general series technical manual intended to be used in conjunction with this instruction and with specific maintenance/repair/overhaul manuals/engineering documents. In cases of conflict between NAVAIR 01-1A-34 and this instruction regarding certification/recertification policy, this instruction shall take precedence.

3.2.2.22 Vibration Analysis Program

3.2.2.22.1 Vibration analysis provides the capability to detect faults and degradation in aircraft, dynamic components, and engines by the analysis of R} trends in vibration characteristics. The objectives are to reduce vibration related material failures, reduce crew fatigue, and improve safety, reliability, and readiness.

3.2.2.22.2 The provisions of this R} program apply to all aircraft that require vibration analysis. Applicable aircraft MRCs and MIMs contain requirements and procedures for troubleshooting, performing vibration analysis, documenting and reporting the results, training, and record keeping requirements.

3.2.2.22.3 A} The FRC Production Department is responsible for ensuring vibration testing on uninstalled aircraft engines and dynamic components is performed (as required) by applicable MRCs and MIMs.

3.2.2.23 Marine Air Traffic Control and Landing Systems (MATCALs) Program

MATCALs is an all weather, expeditionary terminal air traffic control system operated by the MATCD as part of the Marine air control squadrons that provides tactical air traffic control services at forward operating bases, expeditionary airfields, and existing airfields. MATCALs provides all weather air traffic control services using radar approach, precision approach, tower services, and navigational aids. The maintenance program for MATCALs follows the guidelines of this instruction and uses the MDS for reporting maintenance and logistics information. COMNAVAIRSYSCOM is responsible for implementing and managing the MATCALs Program. PMA-213 is responsible for program management. Fleet support is provided by AIR-6.6 and SPAWARSCEN 2336.

3.2.2.24 Expeditionary Airfield (EAF) Program

EAF is a shore-based, Aviation Weapons Support System that permits deployment of landing force aircraft within effective range of ground forces. The goal of the EAF is to provide the task MAGTF with a flexible capability to rapidly deploy and establish survivable, self-sustaining airfields in support of the Aviation Combat Element for employment in an Expeditionary Operation. The EAF subsystems include an airfield surface system, aircraft recovery system, airfield terminal guidance system, and airfield lighting and marking systems. The maintenance program for EAF follows the guidelines of this instruction. EAF serves as a single functional program with multiple internal functional areas. Program management resides in COMNAVAIRSYSCOM (PMA-251).

3.2.2.25 Planner and Estimator (P&E) Services Program

a. The P&E Program provides specific guidance for requesting P&E services for aircraft sustaining damage or deterioration by some means other than a mishap. Accordingly, the term “damaged” as used in this instruction, encompasses impairment of an aircraft from cause, which results in a requirement for D-level skills or facilities (special rework) to restore the aircraft.

b. NAVAIRINST 4730.10 sets forth procedures to be used for aircraft eligible for ASPA.

c. Type Wing Commanders, CGMAW, CGMARBDE, and Air Wing Commanders (as appropriate) shall coordinate and monitor all P&E services requests within their cognizance and ensure subordinate commands comply with procedures herein.

NOTE: D-level man-hours in excess of 500 man-hours will require approval of TYCOM/COM-NAVAIRFOR (N421) due to funding allocations.

d. Reporting Custodians, when practical, obtain concurrence that D-level services are required from both the supporting IMA and cognizant wing prior to submission of a P&E services request. When requesting ASPA/MCI supporting IMA concurrence is not required.

e. Submit P&E request, using the format per [Figure 3-15](#), by priority precedence message. This is an operational report and is not subject to “COMMUNICATION MINIMIZE” per CNO directives. As action addressee, include the nearest FRC site along with the cognizant Wing Commander as info addressee. The nearest D-level repair activity will determine if they have the necessary repair capability. Include, as information addressees, COMNAVAIRFOR (N42/N421) and COMNAVAIRSYSCOM (AIR-6.0D). In the event of transient aircraft units temporarily absent from the parent command, include the local Wing Commander as an information addressee.

NOTE: NAVAIRPRA has area of responsibility cognizant for those units that are operating in theater, for example, NAVAIRPRA ATSUGI JA has overall responsibility for Commander, Seventh Fleet and Commander, Fifth Fleet area of responsibilities.

f. Reporting custodians shall take the following steps prior to rework by D-level repair team:

- (1) Prepare aircraft for ground maintenance per applicable MRCS.
- (2) Remove spare and loose gear.
- (3) Preserve aircraft per existing regulations.
- (4) Deliver aircraft and engine logbooks and associated records; ensure that entries are completed and up-to-date prior to delivery when required.
- (5) Report aircraft status changes per OPNAVINST 5442.2.
- (6) Provide appropriate assistance to the P&E inspector and D-level repair team to facilitate expeditious repair or restoration of the damaged/defective aircraft.
- (7) Remove all classified equipment.

g. When repair is accomplished on site, the requesting activity will accomplish the following items in addition to subparagraphs (1) through (6) above:

- (1) Retain physical custody of aircraft safety, security, reporting and maintenance.

(2) Provide, connect, and service ground equipment. Accomplish positioning/jacking/servicing the aircraft. Remove/reinstall aircraft parts/components within capability/level of maintenance (as required) for access to accomplish the D-level repair.

(3) Accomplish operational test/leakage checks (as required).

(4) Prepare aircraft for flight and accomplish post maintenance check flight (as required).

h. All damaged aircraft prior to induction for rework/repair shall be preserved per NA 15-01-500, regardless of physical location, to prevent further deterioration of material condition. Parts shall not be cannibalized from damaged aircraft unless specifically authorized by COMNAVAIRFOR (N421).

i. When aircraft are flown to depot and it is impractical for delivering crew to accomplish each of the above, the reporting custodian will ensure that no less than items in subparagraphs 3.2.2.2.4f (2), (4), and (5) above are accomplished.

j. Supporting IMA shall:

(1) Inspect the damaged/defective aircraft and determine which repairs (if any), are within IMA capability and indicate concurrence with P&E inspection request.

(2) Provide on equipment support as requested/required by the reporting custodian to efficiently repair or restore damaged or defective aircraft.

3.2.2.26 A} Global Test Facilities (non-GTETS)

3.2.2.26.1 Global test facilities include rotor blade test towers, ram air turbine testing, Kemen Engine Test Facility (FRCSE), or other facilities unique to the industrial sites.

3.2.2.26.2 Accessories, components, and engines reworked, repaired, or overhauled normally require an operational test or functional check in a test cell or facility to determine performance parameters and characteristics. Only qualified test cell operators shall be authorized to perform test cell operations.

3.2.2.26.3 Employees certifying test cell operations that determine performance after rework, repair, modification, or overhaul and those employees certifying the Serviceable Tag-Material (DD-1574), shall be thoroughly familiar with and demonstrate a practical proficiency of the test cell capabilities, limitations, safety precautions, and the procedure to adequately measure or determine performance parameters and characteristics of the item being evaluated.

3.2.2.26.4 The initial certification and subsequent recertification(s) will require a written and practical examination given by designated personnel to include test cell pre-start, start, turn-up, shutdown, and emergency procedures.

NOTE: Refer to [Chapter 10](#) (paragraph 10.23) for GTETS.

3.2.3 Non-NAMPSOP Maintenance Processes

a. Non-NAMPSOP maintenance processes addressed in this chapter are intended to be implemented using this instruction and specific program related technical manuals which are identified within the text. Generation of supplemental instructions below ACC/TYCOM/Wing level to augment these policy management documents are not authorized.

b. All letters of designation, qualification, certification, course completion, medical certification, and completed maintenance related PQS shall be filed in the individual's qualification/certification record.

3.2.3.1 Aircraft and Support Equipment (SE) Painting

3.2.3.1.1 The primary objective of any paint system is to protect exposed surfaces and components against corrosion and other forms of deterioration. Maintenance and repair of paint finishes are extremely important, beginning with aircraft weapon systems development and continuing with constant surveillance throughout the service life of the systems.

3.2.3.1.2 The coating systems used on naval aircraft and the colors selected have been developed to provide maximum tactical advantage and protection of critical surface material. Touch-up painting shall be restricted to only that amount required to repair damage during the corrosion repair process. Repainting of aircraft or entire sections of the aircraft at O-level and I-level maintenance is specifically prohibited, except when authorized in writing by the TYCOM.

3.2.3.1.2.1 The standard paint system for all naval aircraft and SE is an aliphatic polyurethane resin. Polyurethane provides maximum flexibility, weatherability, and resistance to all aircraft fluids.

3.2.3.1.2.2 The epoxy polyamide topcoat is an alternate authorized for touch-up of polyurethane at O-level and I-level, only when polyurethane is not available, or when prohibited by specific directives. Epoxy has an

THIS PAGE INTENTIONALLY LEFT BLANK.

excellent chemical resistance; however, it has low temperature flexibility and exhibits poor weatherability when exposed to direct sunlight for extended periods.

3.2.3.1.3 The environmental protection agency, as well as certain local and state air pollution control districts, have implemented rules which limit the VOC content or solvent content of paints applied to aircraft and SE. Manufacturer's thinning instructions must be followed to ensure VOC limits are not exceeded. The Station Safety Officer, Environmental Officer, or IH should be consulted to determine if coating conforms to local environmental regulations ([Chapter 10](#), paragraph 10.19).

3.2.3.1.4 Material technology and environmental regulations change rapidly. Therefore, as required, COMNAVAIRSYCOM (AIR-4.9.7) or the ACC/TYCOM shall promulgate changes to the list of authorized materials. These changes will be in official correspondence via naval message, letter, or publication changes. Authorization to deviate from approved material/processes must be requested and approved in writing by the ACC/TYCOM prior to use. Copies of changes to the authorized material list shall be provided to the host safety office and the cognizant Navy IH.

3.2.3.1.5 Application and maintenance of the coating used on aviation SE is similar to that required for aircraft. Aliphatic polyurethane and epoxy polyamide are commonly used. However, environmental regulations in some geographic areas further restrict the VOC content of paint and primer formulations for SE. NAVAIR 17-1-125 contains detailed instructions for SE and coating maintenance. COMNAVAIRSYCOM (AIR-4.9.7) must approve all material and processes used in the maintenance of aeronautical equipment. The use of any non-approved process is strictly prohibited. Because state/local governmental agencies are empowered to restrict the use of maintenance chemicals, paints, and processes, all activities are responsible to be knowledgeable of and comply with these regulations. Maintenance managers must meet both COMNAVAIRSYCOM (AIR-4.9.7) engineering requirements and state/local environmental requirements. Close coordination with the host base Environmental Office and the ACC/TYCOM are required to keep abreast of constantly changing requirements.

3.2.3.1.6 Protection standards limit work place unprotected exposure of Hexamethylene Diisocyanates or Toluene Diisocyanate to a concentration of 0.005 PPM averaged over an 8-hour period. Additionally, unprotected workers may not be exposed to Toluene Diisocyanate concentrations exceeding 0.02 PPM for any 15-minute period. These standards apply to military and civilian workers. Half-face organic vapor (charcoal) air purifying respirators used to protect workers against Toluene Diisocyanate or Hexamethylene Diisocyanates cannot be used when the concentration of these contaminants exceed 0.005 PPM. Isocyanate substances are also problematic: They cannot be detected by smell or taste should the respirator cartridge fail or become ineffective due to overloading.

3.2.3.1.7 All NAE activities shall:

- a. Coordinate and monitor compliance with this instruction.
- b. Notify the ACC/TYCOM of any difficulties encountered with this instruction.
- c. Assess subordinate activities' compliance with this instruction during inspections conducted per [Chapter 2](#).

3.2.3.1.8 Aircraft reporting custodians and IMAs/FRCs (afloat and ashore) shall ensure:

- a. The industrial hygiene survey includes an assessment of paint touch-up operation of aeronautical equipment per NAVAIR 01-1A-509, OPNAVINST 5100.23, and OPNAVINST 5100.19. The evaluation shall include, at a minimum:

- (1) Process descriptions.

- (2) Process assessments.
- (3) Process locations.
- (4) Contaminant control methodologies.
- (5) Medical surveillance requirements.
- (6) PPE requirements.

b. The cognizant IH is notified of any permanent changes to the process or its components that may affect the workplace.

NOTE: This requirement is not restricted to material containing isocyanates.

c. Only supplied-air respirators are used for touch-up operations requiring a quantity of paint greater than 8 ounces per 8-hour period for paints that contain isocyanates. Unless recommended otherwise by the cognizant IH, half-face or full-face organic vapor air purifying respirators may be used for short-term touch-up operations using 8 ounces or less of paint containing isocyanates. Aircraft reporting custodians will also ensure:

- (1) Paint VOC content does not exceed local environmental restrictions.
- (2) Personnel conducting touch-up processes are medically qualified and have received appropriate training.
- (3) Non respiratory factors, such as skin exposure are taken into account.
- (4) An effective change schedule is established and implemented for organic vapor cartridges.

d. Personnel assigned duties involving the opening, mixing, or application of coating materials receive the necessary training, pre placement, periodic medical surveillance evaluations, and respirator fit testing/use recommended by the servicing Navy IH.

e. Personnel assigned duties involving exposure to potentially harmful dusts, mists, or vapors wear/use personal protective clothing and equipment required by NAVAIR 17-1-125, NAVAIR 01-1A-509 (series), NAVAIR 01-1A-75, OPNAVINST 5100.19, OPNAVINST 5100.23, and NAVAIR A1-NOSH-SAF-000/P-5100-1 as specified in the Industrial Hygiene Survey Report.

f. Unprotected personnel are restricted from areas where exposure to potentially harmful dusts, mists, or vapors exist.

g. Unprotected personnel are restricted from areas where polyurethane or other potentially hazardous coatings are used including opening, mixing, and application. Refer to Material Safety Data Sheets and Industrial Hygiene survey for the specific coating/maintenance material to determine hazards.

h. Complete repainting of SE and ancillary/components is an authorized I-level maintenance function. Whenever possible, painting shall be done in a paint booth. When performed ashore, inspection and approval by the host Occupational Safety and Health Office/Fire Department is required per OPNAVINST 5100.23. When painting in standard maintenance hangars/spaces afloat, approval of the Safety Officer/IH is required. Painting procedures shall comply with personnel safety and health requirements.

- i. Aircraft paint schemes shall be maintained as delineated in MIL-STD 2161B(AS) and as follows:

- (1) Squadron logo/insignia is restricted to aircraft tail(s) only.
- (2) Squadron logo/insignia on TPS aircraft shall use only the low contrast shade of TPS gray against gray background and camouflage painted aircraft shall use black (color number 37038) against land camouflage background.
- (3) Aircraft side numbers and squadron identifier may be painted in flat black or TPS gray.
- (4) Aircrew, plane captain, and ship name may be added with letters not exceeding two inches in size in flat black or TPS gray.
- (5) Navy Type Wing Commander and Marine Corps Air Wing Commanders are responsible for the uniformity of all aircraft under their cognizance. Additional markings and color schemes are strictly prohibited.

NOTES: 1. A} Low observant aircraft shall not be authorized to be painted with the squadron/air wing colors.

2. One aircraft per squadron (2 aircraft for FRS) is authorized to be painted with the squadron/air wing colors. Areas authorized to deviate from TPS include: the tails, alphanumeric characters, national star insignias, and no more than 25 percent of the aircraft fuselage. For example, aircraft side/BUNO numbering and pilot/plane captain names may be painted in squadron colors to include a shadowing effect (if desired). Squadron colors/logos, such as striping, may be painted on the fuselage. The CO shall ensure TPS/camouflage integrity is restored during hostile actions.

3. Force Protection paint scheme shall be used for all utility aircraft per MIL-STD 2161B(AS).

3.2.3.1.9 Deviations from authorized paint scheme will only be considered for tactical reasons, for example, to evaluate an alternate paint scheme.

3.2.3.2 Preservation

3.2.3.2.1 Aircraft Preservation

3.2.3.2.1.1 Prevention of deterioration is one of the more important requirements of the NAMP. Mission readiness and the conservation of reserve stocks of aircraft can be seriously impaired by corrosion damage and other forms of deterioration.

3.2.3.2.1.2 Deterioration damage is greatest when aircraft are dirty, inactive, or being shipped. Mission readiness depends on the effectiveness of maintenance and protection programs. If the work of repairing deterioration damage is added to the normal workload, maintenance becomes very difficult, time consuming, and costly.

3.2.3.2.1.3 NAVAIR 15-01-500 provides instructions for initial preservation treatment, preservation maintenance procedures, and necessary depreservation steps.

3.2.3.2.1.4 Special MRCs have been or are being prepared for each T/M/S aircraft to specify preservation/maintenance requirements for temporarily inactive, flyable and nonflyable, aircraft for periods up to six months. These special MRCs include sensitive maintenance actions required to prevent deterioration of all systems and equipment during periods of inactivity. Reporting custodians having aircraft not covered by preservation MRCs shall comply with the requirements of NAVAIR 15-01-500. The T/M/S Baseline Manager will ensure requirements of NAVAIR 15-01-500 are built into the baseline for aircraft not covered by preservation MRCs.

3.2.3.2.2 Component Preservation Packaging, and Handling

3.2.3.2.2.1 All aeronautical material, regardless of status, RFI or non-RFI, shall be preserved, packaged, and handled by supply and maintenance personnel in such a manner as to prevent damage or deterioration. The T/M/S Baseline Manager will ensure requirements of NAVAIR 15-01-500 are built into CM baseline for components (engines, prop assemblies, APUs, AAE, etc.) not covered by preservation MRCs. NAVSUP Publication 700 provides preservation and packaging requirements for specific repairable components.

3.2.3.2.2.2 In no case shall non-RFI material be casually and carelessly handled, merely because it is intended to undergo repair. Particular care shall be given to the movement, staging, and transportation of repairables to be forwarded to a repair activity, to prevent further damage that could require additional time and money to repair.

3.2.3.2.2.3 The processing work center is responsible for internal and external preservation, prior to packing, of all components. The AMSU will ensure the component is adequately protected for local routing to the supply or FRC packing and preservation section. For the Marine Corps, this is the function of the Supply Shipping Branch of the RMD. The packing and preservation section is responsible for final packing and preservation of components, less engines, prior to storage or shipment. Engines are packed and preserved by the IMAs/FRCs.

3.2.3.2.2.4 When it is determined a component is to be turned in to salvage, an I-level work center will disassemble the component so all repairable subassemblies can be handled separately. Tag each subassembly as non-RFI and annotate the tag with the words "salvaged from condemned repairable components". The subassemblies are then delivered to the CCS of the ASD without further documentation. The stripped carcass is processed in the normal manner for condemned material. For tracked CM components, IMA/FRC shall make an electronic entry stating the component has been salvaged and transfer the CM ALS records to the OOMA Electronic Repository at COMNAVAIRSYSCOM (AIR-6.8).

3.2.3.3 Recovery and Reclamation of Crash Damaged Aircraft

3.2.3.3.1 General procedures and basic policies for the recovery, reclamation, and transfer of crash damaged aircraft are in OPNAVINST 3750.6 and OPNAVINST 5442.2.

3.2.3.3.2 When an aircraft crashes within the land area of a naval district in CONUS, and subsequent to request by the reporting custodian to the cognizant Type Wing/CGMAW, the nearest Navy or Marine Corps air station, facility, or activity designated by the cognizant Type Wing/CGMAW is responsible for recovering the damaged aircraft. However, the reporting custodian furnishes officer and enlisted personnel to assist in the recovery, as requested. When a damaged aircraft is suitable for repair/rework, and if practicable, it should be inspected at the scene of the mishap by a FRC P&E. The services of a P&E may be requested from the nearest geographical FRC through the cognizant Type Wing/CGMAW by the reporting custodian or temporary physical custodian of the aircraft concerned.

3.2.3.3.3 When an aircraft crashes outside CONUS, the reporting custodian notifies the cognizant COMFAIR/CGMAW who makes the necessary arrangements for disposition and, if necessary, reclamation of the aircraft. The cognizant COMFAIR also designates the station, facility, or unit to recover and accept physical custody of the damaged aircraft. The cognizant COMFAIR/CGMAW arranges for qualified personnel to determine the suitability of aircraft damaged outside CONUS for rework, repair, or other disposition.

3.2.3.3.4 Disposition and salvage procedures for stricken aircraft are addressed as follows:

a. When a damaged aircraft is determined to be beyond rework, the aircraft shall be reported as a category one strike, per OPNAVINST 5442.2. In this case, the aircraft may be transferred to the nearest CONUS naval air activity for return to COMNAVAIRSYSCOM FS custody and final disposition.

b. When it is impractical to return the aircraft to COMNAVAIRSYSCOM FS custody, the reporting custodian shall physically transport the aircraft to the supporting supply activity designated by the ACC/TYCOM. The stricken aircraft will be reported to COMNAVAIRSYSCOM for processing per current instructions for the SARDIP. No one, other than the IMA/FRC reclamation team, is allowed access to stricken aircraft.

c. Requests for stricken aircraft, components, or assemblies will be directed to the CO of the salvaging activity, marked "Attention Supply Officer."

d. NTCSS Optimized OMA NALCOMIS activities with stricken aircraft, components, or assemblies that have CM ALS records shall make entries stating they are stricken and transfer the record to COMNAVAIRSYSCOM Wholesale Foundation Tier.

3.2.3.4 Emergency Reclamation

3.2.3.4.1 Reporting custodians/I-level activities shall:

a. Include local command procedures ([Chapter 10](#), paragraph 10.13) which outline processing procedures for emergency reclamation of aircraft, equipment, components, and SE. The local command procedures shall include a required material list and an equipment removal priority list and reference NAVAIR 00-80T-121 and FM 3-5/MCWP 3-37.3 for procedures to follow in the event that aircraft, equipment, components, or SE are exposed to NBC agents and require decontamination.

b. Ensure availability of material and equipment per NAVAIR 01-1A-509-2 to enhance rapid processing and corrective action for reclaimed equipment.

3.2.3.4.2 During reclamation actions, I-level activities shall assist supported activities by providing expertise and equipment not authorized for O-level maintenance.

3.2.3.4.3 COMFRC activities shall refer to Chapter 10, paragraph 10.13.

3.2.3.5 Management Information Systems (MIS)

3.2.3.5.1 CMIS Component Tracking System for Aircraft tracks the operating time/cycle counts of selected aircraft components. They are primarily life limited components and the system can supply reports which specify the operating time/cycle counts remaining on each tracked component before it must be inspected or removed and replaced. Using usage rates derived from experiments and tests, workloads for maintenance and rework facilities can be forecast for 5 years. In addition, long range requirements for new and newly reworked components can be developed. The ISSC, or in some cases the APML, for each aircraft in the system is responsible for maintaining and updating the database for the aircraft. Each ISSC can provide management information on the following rotary wing aircraft: H-1, H-60, H-53, and H-46. Fleet units and others may also obtain such information directly. For further information concerning development of this direct data access capability, contact COMNAVAIRSYSCOM (AIR-6.8.4).

3.2.3.5.2 CMIS Component Tracking System for Engines tracks the operating time/cycle counts or LUIs of selected engine components. They are primarily life limited engine components. The systems can supply reports which specify the time/cycle counts or LUIs remaining on each tracked component before it must be inspected or removed and replaced. Using usage rates derived from experiments and tests, workloads for maintenance and rework facilities can be forecast for 5 years. In addition, long range requirements for new and reworked components can be developed. The ISSC, or in some cases the APML, for each engine in the system is responsible for maintaining and updating the database for each engine. Each ISSC can provide management information on J85, T700, TF34, J52, T64, T76, T58, T56, and T400 engines. Fleet units and

others may also obtain such data directly. For further information concerning development of this direct data access capability contact COMNAVAIRSYSCOM (AIR-6.8.4).

3.2.3.5.3 DECKPLATE tracks location and status (installed, uninstalled, RFI, and non-RFI) of engines, propulsion systems, and modules world wide, and provides reasons for any changes. The system also tracks both RFI and non-RFI spare engines, propulsion systems, and modules which are in transit, awaiting repair or rework, or actually in repair or rework. The system is used extensively by controlling custodians and other managers to effect the most efficient distribution of engine assets. Refer to NAVAIRINST 13700.15 and ACC instructions for detailed procedures.

3.2.3.5.4 The DMDS is a module of the NDMS and is designed to gather all basic information generated by maintenance personnel through documentation procedures, data automation and storage techniques, and common data retrieval routines. The information will be gathered from mechanics, technicians, inspectors, and supervisory personnel in all of the basic organic D-level endeavors.

3.2.3.5.5 The Flight Information Recording and Monitoring System monitors and records data critical to the determination of the life limits of aircraft and engine components. The data is collected for download to a ground station for diagnostics and to update life usage indexes. NAVAIRINST 4790.21 contains additional information on this system. When coupled with MAFs, WOs, NAVFLIRS, and Naval Flight Documents, this nontactical data provides a database for detailed analysis of engine performance, engine life limited items, material usage and life remaining, and in-flight airframe structural loading. Additionally, the data can be used in support of the SAFE Program. The Maintenance Signal Data Recording System data storage unit must be removed from the aircraft and processed for generation of reports as required.

3.2.3.5.6 LAMS is an automated management information system which provides for standardized local management of IMRL assets.

3.2.3.5.7 Master Component Rework Control System is a system to provide a consolidated, comprehensive on-line database of component and SE stock number catalog, designated overhaul point assignment and capability data, production history, and financial performance and obligation data.

3.2.3.5.8 MEASURE is a system for the recall and reporting of test equipment by means of automatic data processing techniques. This system maintains records of calibration and automatically recalls test equipment when due for calibration.

3.2.3.5.9 NALCOMIS provides O-level, I-level, and ASD activities with a modern, real time, responsive, computer based MIS. The three objectives of NALCOMIS are to increase aircraft readiness by providing local maintenance and supply managers with timely and accurate information required in their day-to-day management and decision making process, reduce the administrative burden on the fleet, and improve the quality of upline reported data.

3.2.3.5.10 NTCSS Optimized NALCOMIS provides O-level, I-level, and D-level activities with an improved capability to manage aircraft maintenance and configuration. It also provides the capability to track maintenance resources and document aircrew flight time and system usage information. NTCSS Optimized NALCOMIS has the capability to provide maintenance and configuration data up-line in near real-time and receive automated maintenance planning data updates. The CM portion of NTCSS Optimized NALCOMIS offers a full range of capabilities to manage aircraft and component configuration. It provides accurate listings of all aircraft components that are considered tracked items, tracks usage indicators for life limited components, maintains configuration items history records, and forecasts scheduled maintenance.

3.2.3.5.10.1 CM provides the basis toward achieving a completely automated maintenance environment, which streamlines the entire maintenance process. It provides the ability for the automation of data entry

from aircraft flight recorders (MU, HUMS, SMART card), the automatic accumulation and tracking of usage. The NTCSS Optimized OMA NALCOMIS requirement is to create a system by which individual platforms may independently develop application modules such as pilot and maintenance debrief, on-line diagnostics, structural life prognostics, IETM, and PEDD which can operate in conjunction with the core functions. The CM module will interface with various platform specific software application modules that address specific maintenance functions. It is COMNAVAIRSYSCOM policy that the CM module will support and enhance the maintenance plans developed and maintained by the designated APLM/LM.

3.2.3.5.10.2 The Integrated maintenance process of the CM module encompasses three major areas:

a. Equipment. To validate the ongoing disassembly and rebuilding of equipment, an equipment configuration baseline is required. Once this baseline is put in place, the actual configurations of the equipment can be tracked.

b. Usage. As aircraft become more sophisticated with various sensors, maintenance will be, and is today, driven with advanced LUIs, such as fatigue cycles and thermal cycles. Prior to defining any maintenance based on these parameters, there must be a usage baseline established to define the usage data available for each equipment type in the equipment baseline. Once this is in place, the usage can be correctly tracked and accumulated against the right equipment.

c. Maintenance. Once the equipment configuration baseline and usage baselines have been defined, the maintenance baseline can be assembled defining all scheduled preventive maintenance (PMIC, MRCs, TDs, and other service bulletins) as well as the potential corrective repairs that are anticipated (conditional or unscheduled maintenance). The maintenance baseline becomes integrally linked with the equipment configuration baseline and the usage baseline. Maintenance entries can be validated using the maintenance baseline to ensure the proper maintenance tasks and usage at the time of maintenance is being recorded against the proper equipment types. By applying a scheduler to the maintenance entries, and by associating the actual equipment configurations and actual usage, the system is then able to schedule all PM.

3.2.3.5.11 NALDA is the Navy's major logistics information system used in support of the COMNAVAIRSYSCOM Life Cycle Logistics System. It provides remote hardware, telecommunications, central computing, and a database management system for fleet support operations.

3.2.3.5.12 SERMIS is a collection of technical and cataloging data identifying SE end items required for O-level, I-level, and D-level aircraft maintenance. SERMIS provides on line visibility of source, allowance, inventory, and rework data to aid in inventory control and is the repository of master data for printing IMRLs.

3.2.3.5.13 SESS is a microcomputer based asset control system for SE.

3.2.3.5.14 NDMS is a production control system used by the FRC to schedule, induct, and control D-level workload.

3.2.3.5.15 VFS CADPAD, TRACE CADPAD and TRACE LIFE SUPPORT Modules, an internet based system, provides a standardized method to manage, report and generate hard copy history records on ALSS components and installed explosive devices.

3.2.3.5.16 MFOQA is an MIS based on the collection, download, analysis, and visualization of available aircraft systems data to provide quantifiable and actionable information that can be used to enhance naval aviation readiness through improved maintenance, operational, safety, and training efficiencies. The MFOQA concept is in response to goals set by the SECDEF for reducing mishap rates and the costs associated with mishaps. MFOQA has been mandated within the DOD for all Services (OSD Memo 11 Oct 2005), and is implemented within DON for select aircraft using existing onboard flight and health monitoring

data collection systems, for example, IVHM, IMD-HUMS, and VSLED. MFOQA is an off-aircraft, software only system which provides aircrew and maintenance personnel the ability to review flight data and analytical results immediately after a flight, squadron leadership with information to facilitate informed decision making, and upper echelon commands with aggregate, quantifiable information for oversight of fleet-wide aviation readiness. MFOQA also provides data-based information that can be used to objectively assess aircraft system malfunctions and performance trends to determine if changes in maintenance procedures, system design/scheduled component replacement are warranted, and if so, determine the specific changes required. It provides the means to assess the impact of any systems/ procedural changes made, and determine if further changes are warranted. The MFOQA process provides tools that can be used to measure the effectiveness of ORM intervention strategies, supports the implementation of condition based maintenance, and continually evolves as more advanced automated analytical capabilities are developed.

3.2.3.5.16.1 MFOQA does not replace or supersede existing COMNAVAIRSYSCOM-approved aircraft maintenance and troubleshooting procedures or NATOPs procedures. Instead, it provides quantified aircraft data to assist the maintenance and operational decision making process, and is designed to supplement other aircraft related MIS.

3.2.3.5.16.1.1 At the squadron level, MFOQA enables a decentralized post-flight debrief process that provides automated detection and reporting of predefined aircraft systems related events. It also provides a user-friendly interface to conduct queries of and visualize available data to facilitate more efficient troubleshooting of aircraft system malfunctions. MFOQA provides the ability to animate relevant flight segments to provide maintenance personnel with quantifiable information regarding overall aircraft systems performance when malfunctions actually occur. It also enables more thorough and objective aircrew maintenance debriefs. MFOQA provides a post-mission aircrew debrief function in a dynamic multi-dimensional animation with strip charts, cockpit instrumentation, and flight parameter values.

3.2.3.5.16.1.2 At the squadron, TypeWing/MAG, TYCOM/MAW, and other Naval Aviation Enterprise command levels, MFOQA provides automated analysis, trending, and reporting of aggregate aircraft systems data, for example, MSP/MMP/BIT codes and predefined system operating threshold exceedances, and the ability to conduct ad hoc aggregate data queries and analyses. It also provides a robust centralized top-tier repository for historical and across-platform enterprise-wide analysis capabilities.

3.2.3.5.16.2 COMNAVAIRSYSCOM (PMA-209) is responsible for the development and acquisition of the MFOQA system infrastructure and related support; COMNAVAIRFOR (N422) is responsible for the fleet-wide implementation of the MFOQA system. Further guidance on MFOQA processes and related responsibilities will be promulgated by COMNAVAIRFOR (N422).

3.2.3.6 Management of Permitted Radioactive Commodities on Naval Aircraft

Several naval aircraft are identified to contain radioactive materials that, if not properly controlled, handled, stored, or disposed of, increase the probability of injury to personnel resulting from exposure. COMNAVAIRFOR, NAVICP, and COMNAVAIRSYSCOM are responsible for proper acquisition, storage, transport, control, inventory and disposal of naval aircraft systems containing radioactive materials or by-products under special license or permit from the Navy Master Material License issued by the Nuclear Regulatory Commission. As such, those activities shall establish specific management and accountability programs per OPNAVINST 6470.3, NAVSUPINST 4000.34, MCO 5104.3, NAVSEA A0420-AA-RAD-10, and NAVAIRINST 5104.1.

3.3 Maintenance Department, Division, and Unit Organization

3.3.1 Objectives of Standard Organization

3.3.1.1 The NAMP provides for standard organizations having explicit responsibilities assigned. Standardization shall ensure effective management within a framework of authority, functions, and relationships necessary to achieve improvements in performance, economy of operation, and quality of work. Such objectives are not attainable by a manual of organizational structure alone. They are more readily attainable by the intelligent and dedicated efforts of all personnel engaged in maintenance, completely integrated by the management control processes used in an effective, standard organization. A standard organization for maintenance and support activities, properly implemented, will improve:

- a. Performance and training of personnel.
- b. Aircraft, equipment, and system readiness.
- c. Maintenance integrity and effectiveness for all material.
- d. Safety.
- e. Usage of maintenance manpower and materials.
- f. Planning and scheduling of maintenance work.
- g. Management and evaluation of work performance.
- h. Quality of the end product.
- i. Attainment and retention of combat readiness.
- j. Continuity when aircraft or personnel are transferred between commands.
- k. Environmental compliance.

3.3.1.2 Organizational Structure. The structures per this chapter are based on the principles and concepts of modern management. These structures incorporate the basic span of control, proper alignment of functions, division of work, uniformity of assignments, and the delegation of authority commensurate with the assignment of responsibility.

3.3.1.3 Responsibilities of Line and Staff. A line relationship is a relationship which exists between senior personnel and their subordinates. This relationship may be identified as a direct supervisory relationship, involving work assignment to subordinates and appraisal of performance. The staff relationship, on the other hand, is the relationship which exists between an advisory staff supervisor and a production line supervisor. Staff elements are designed to be integral elements of the organization, wholly concerned with the exercise of servicing and supporting production elements.

3.3.1.3.1 [Figure 3-26](#) shows the relationship between line and staff functions within naval activities assigned O-level maintenance responsibilities.

3.3.1.3.2 [Figure 3-27](#) shows the relationship between line and staff functions within Marine Corps activities assigned O-level maintenance responsibilities.

3.3.1.3.3 [Figure 3-28](#) shows the relationship between line and staff functions within the autonomous maintenance unit concept authorized for large readiness and training squadrons. This organization concept may also be adapted for use by carrier air wing composite beach detachments.

3.3.1.3.4 [Figure 3-29](#) shows the relationship between line and staff functions within OMDs and certain other activities or detachments with four or less aircraft.

3.3.1.3.5 [Figure 3-30](#) shows the relationship between line and staff functions within the O-level Maintenance Department Organization (EAF).

3.3.1.3.5 The relationship between line and staff functions within Airborne Mine Countermeasures Systems Maintenance Departments in HM Squadrons is shown in [Chapter 8](#).

3.3.1.4 Use of Terms. Department, as used throughout this instruction, is a general term which applies fully to all maintenance activities having a department head. In cases of maintenance activities assigned as divisions to other departments, division will be used in place of department; branch will be used in place of division; and section in place of branch.

3.3.1.5 Organization Policy. Work centers are designated functional areas to which maintenance personnel are assigned. Typical work centers are Airframe Shops, Power Plants Shops, and Maintenance/Material Control. A work center will be established for each functional area to which maintenance personnel may be permanently assigned in an organization. The quantity and designation of work centers will be based upon required support functions, numbers of personnel, span of control, workload schedules, and specific locations. Work centers will be established as specified in [Chapter 6](#) for the lowest practicable level of supervision desired.

NOTE: Any branch or division may be deleted whenever responsibilities relative to that branch or division are nonexistent or not extensive.

3.3.2 Organization, Responsibilities, and Functions of Intermediate Maintenance Activities (IMAs)

3.3.2.1 An IMA/FRC comprises all departmental/organizational units responsible for providing I-level maintenance support ashore and afloat. Normally, an IMA/FRC consists of the Aircraft Maintenance Department/Detachment, the Supply Department, and the Weapons Department. The IMA/FRC is responsible for performing I-level maintenance functions on the aircraft and aeronautical equipment located at the ship or station supported. [Figures 3-31, 3-32, 3-33, and 3-34](#) describe the standard organization for those activities assigned the responsibility for providing I-level maintenance support ashore and afloat.

3.3.2.2 Weapons Department organization and maintenance responsibilities appear in OPNAVINST 8000.16.

3.3.3 Functions for Intermediate Maintenance Activities (IMAs) (Afloat)

3.3.3.1 Afloat AIMDs shall accomplish those management, staff, and production functions applicable to shore activities even though the organizational structure is changed.

3.3.3.2 In addition to those responsibilities listed in OPNAVINST 3120.32, the AIMDs (afloat) will:

- a. Ensure the existence and proper preparation of maintenance facilities to support the embarked air wing/group.
- b. Update facility plans to accommodate new deck loads as directed by applicable instructions.
- c. Review outstanding ship alterations and submit recommendations on those concerning the AIMDs.

- d. Coordinate personnel requirements with the air wing/squadron MO.
- e. Coordinate the assignment of O-level maintenance spaces with the air wing/squadron MO.
- f. Assume responsibility for upkeep and security of O-level maintenance spaces while the air wing/squadron is debarked.
- g. Perform O-level and I-level maintenance for aircraft assigned to the ship.
- h. Provide I-level maintenance support to the Weapons Department for maintenance beyond the established capability of the Weapons Department.
- i. Receive, manage, and return spare ALSS assemblies to support the deployed air wing/squadron.
- j. Provide Production Control and brokering of BFIMA repair/maintenance requests for CV/LHA/LHD in the battle force. Repair/maintenance support is provided as resourced by the BFIMA Repair Coordinator and as defined by the Battle Group Commander. Repair/maintenance resourcing is provided by the ACC/TYCOM for only those units assigned to the battle force group. BFIMA repair/maintenance actions will be documented in NALCOMIS.

3.3.4 Planning Maintenance

3.3.4.1 MMP. **R}** The MMP provides scheduled control of the predictable maintenance workload, for example, inspections, transfer or receipt of aircraft, and compliance with TDs. By scheduling predictable maintenance, the capability for accomplishing unscheduled work can be determined. In addition, requirements for SE, material, manpower, and other factors affecting the maintenance operation can be determined in advance of actual need.

3.3.4.2 Monthly Planning Meeting. **R}** A monthly maintenance planning meeting will be convened by the I-level MO to coordinate and improve the overall maintenance program. Maintenance and supply representatives from all supported activities on board including weapons departments shall attend.

3.3.5 Organization, Responsibilities, and Functions of Navy and Marine Corps Air Reserve Activities

3.3.5.1 Organizational activities, such as Navy and Marine Corps air reserve squadrons, are considered covered by the standard organizations and procedures.

3.3.5.2 Reserve air stations are responsible for providing combined I-level and O-level maintenance support for aircraft assigned to the air station and for providing I-level support to naval air reserve force squadrons and tenant activities when assigned.

3.4 Manpower Management

3.4.1 Manpower Control/Manage to Payroll

3.4.1.1 Manpower management concerns the civilian personnel employed in the FRCs. Manpower management at levels of authority above COMNAVAIRSYSCOM is exercised primarily through the act of ceiling control or allocation of the maximum number of civilian employees which may be employed by a command or organization.

3.4.1.2 Managing to payroll is a fundamental change in managing personnel resources. Line management is responsible for position management and position classification.

3.4.1.3 Under managing to payroll, personnel costs are controlled by the allocation of payroll to the lowest practicable level of supervision.

3.4.1.4 Authority delegated under management to payroll includes:

- a. Position Management. The authority to create positions.
- b. Position Classification. The authority to assign title, series, and pay grade to positions.
- c. Personnel Budget Execution. The authority to control civilian payroll expenditures within assigned levels.

3.4.2 Manpower Utilization

3.4.2.1 Each FRC administers its own personnel support services program covering functions other than those assigned to the CPO by agreement.

3.4.2.2 Included among these functions, in part, are the following duties:

- a. Present the status of requests for personnel action pertaining to recruitment accessions and separations, detail assignments, and special considerations involving the adaptability of individual employees subject to reassignment.
- b. Administer civilian personnel and maintain needed records for centralized control and organizational apportionments within the depot.
- c. Prepare required revisions or analyses of personnel reports to ensure workload planning and performance are integrated with estimated requirements.
- d. Following the selection of personnel from available sources, for example, civil service registers, promotion, or reassignment from within the local organization, the actual notification of assignment or reassignment is done by the CPO. The assigned personnel are directed to report to the department head who originated the request for personnel action. The detail assignment is under the jurisdiction of the department head. The determination of manpower requirements and the assignment of manpower resources are based primarily on predetermined direct workload requirements.

3.4.3 Labor, Direct and Indirect

Direct labor is defined as work which contributes directly to the material value of the specific product involved. Indirect labor is defined as work which is readily chargeable to, or identifiable with, a specific product but is incidental to and in support of the direct work and does not contribute directly to the material value of the product. Assignment of direct labor manpower is based on assigned workload and its scheduled requirement. Indirect labor manpower assignment is made to support the direct labor and should reflect good business practices.

3.4.4 Methods and Standards

3.4.4.1 The term method, as used in industrial engineering, is defined as a specific combination of working environment, plant layout, materials, tools, equipment, and the motion patterns involved in accomplishing a given operation or task. A standard, in this context, is defined as an established average (norm) for the measurement of time required for a fully qualified operator working at a normal pace to perform a given task.

3.4.4.2 PSPs have been in effect in FRCs since 1951 with primary emphasis on direct labor effort. However, since the early 1980s an increasing emphasis has been placed on evaluating indirect labor functions. The general productivity improvement of FRCs through available techniques is a continuing requirement. The PSP provides supervision and management with a sensitive indicator of worker or work force productive effectiveness within any organizational element as well as a uniform, defensible foundation for production workload planning and shop loading.

3.4.4.3 The Production Engineering Department develops and improves production capabilities by providing industrial engineering services relating to methods engineering and engineered time standards. This department carries out analytical evaluations of existing factors, with accompanying recommendations, that affect workload, scheduling, manpower use, and facility requirements. Accomplishment of this requires:

- a. Analysis of existing and proposed production work, operational methods, and sequences to determine labor standard rates for specified operations.
- b. Analysis and revisions of work place layout and operational sequence.
- c. Application of industrial engineering principles and techniques to attain the best plant output for given expenditure of labor, equipment, and material.
- d. Evaluation of the use of manpower, material, tools, equipment, and processes in shop operations and the making of recommendations for improvement.
- e. Development, correlation, synthesization, and tabulation of standard data (where applicable) by use of approved industrial engineering techniques.
- f. Exchange, review, and use of standard data developments from other government industrial establishments.
- g. Development and execution of needed training programs, for all employee group levels, relating to methods, standards, and standard data.
- h. Recommendations of needed revisions for existing management control systems in their design, development, and implementation.
- i. Evaluation of indirect labor functions with regard to staffing, operational methods, redundancy of tasks, workload requirements, and organizational structure.

3.4.5 Position Management and Classification

3.4.5.1 Overall position management effectiveness is the responsibility of the CO. Position management means organizing tasks into position structures, assigning duties and responsibilities based on need of the organization. The objective of position management is to structure organizations and positions in a manner that optimizes economy, productivity, and organization effectiveness.

3.4.5.2 Line managers will assist the CO in carrying out the CO's assigned mission and shall:

- a. Structure organizations and positions and assign tasks in a manner which optimizes economy, productivity, and organizational effectiveness.
- b. Ensure their organizations conform to the best principles of effective position management and corrective action is taken in a timely manner when the evaluated results of position management and classification reviews/surveys indicate a need for improvement.

- c. Provide necessary training for employees and properly control work assignments.
- d. Apply position management criteria when planning organizations, changes in individual position structures or relationships, changes in staffing, or the assumption of new responsibilities when classification authority is delegated.
- e. Apply and evaluate the effect of labor management policies and practices on people and operations.

3.4.6 Training

3.4.6.1 By public law, the Government Employees Training Act establishes broad general authority for training and development of employees of most federal agencies. FRCs are included in this authorization. The training of Navy civilian personnel is authorized on the basis that training programs will lead to improved public service; cost savings; the development and retention of a permanent nucleus of skilled and efficient government employees well abreast of scientific, professional, technical, and management developments; lower turnover of personnel; reasonably uniform administration of training consistent with the missions of the government; and fair and equitable treatment of employees with respect to training. Training, under this law, may be full or part-time, on or off duty, day or evening, or any necessary combination of these. The FRCs may pay all or part of authorized training and payment may be made directly to the training agency or the employee may be reimbursed for the training expenses.

3.4.6.2 The following is a list of available training programs:

- a. Apprentice Training Program.
- b. OJT.
- c. Other forms of local training, which may be either in shop or in classroom or both, include instructor training, Worker-Trainee Opportunity Program, Upward Mobility Training Program, veterans readjustment appointment, federal EEO, safety and health certification, security instruction, disaster preparedness, management and supervision, etc.
- d. Correspondence courses.
- e. Advanced educational opportunities, for example, cooperative college education programs, cooperative vocational education programs, College Residence Center and Extension Program, Executive and Management Development Program, long-term training and education, and Quality Organization Personnel Training Program.

3.5 Aviation Officers

3.5.1 Commanding Officer (CO) Duties and Responsibilities

3.5.1.1 The CO has the overall responsibility for the accomplishment of the squadron/department mission. COs are responsible for the inspection and quality of material under their cognizance. Generating high standards of quality in a maintenance organization demands a sincere interest on the part of the CO which must be evident to everyone in the command.

3.5.1.2 COs are responsible for training their personnel. Under the CO's direction, all local unit training will include appropriate elements of OPNAVINST 5100.8, OPNAVINST 5100.19, and OPNAVINST 5100.23.

3.5.1.3 The Plane Captain Designation (OPNAV 4790/158) shall be signed by the CO. The CO may (excluding detachments) delegate, in writing, the authority to sign Plane Captain Designations and recertifications to the MO per [Chapter 10](#), paragraph 10.14.

3.5.1.3.1 Squadrons with detachments are authorized deviations to allow the OINC to designate/requalify and suspend plane captain designations.

3.5.1.3.2 The CO of the parent squadron must specifically grant this authority in writing to each OINC.

3.5.1.3.3 This authority may be granted only to detachments deploying in excess of 90 days.

3.5.1.4 Consistent with existing directives and policy guidance, COs should coordinate and cooperate with federal, state, interstate, and local pollution control agencies and adhere to applicable standards for the control and abatement of environmental pollution. Commanders at all levels of maintenance should consult with counsel on environmental issues. Refer to [Chapter 10](#), paragraph 10.19, OPNAVINST 5090.1, OPNAVINST 5100.19, OPNAVINST 5100.23, and the Judge Advocate General Manual for further information on HMC&M.

3.5.1.5 It is most important that the maintenance and operation of SE be considered from two separate but closely related aspects; personnel safety and equipment effectiveness. Training programs shall be designed and administered to provide for both considerations. It is emphasized that, in addition to the many directives and instructions published by higher authority, final responsibility for personnel safety and effectiveness of equipment is vested in the CO. Command attention to and supervision of necessary and efficient training can be of immeasurable help in substantially reducing the number of personnel injuries, equipment damages, and resultant dollar losses.

3.5.1.6 One of the primary duties of every CO and MO is the responsibility of ensuring all aeronautical equipment that can be repaired within their cognizance is repaired and returned to RFI status.

3.5.1.7 The CO has other primary duties pertaining to the NAMP and maintenance. The CO shall:

- a. Prescribe custody and issue controls of flight packets.
- b. Sign taxi licenses and engine/APU turnup authorizations.
- c. Designate in writing those persons authorized to sign the record certifying safe for flight condition.
- d. Designate in writing the HMC&M Officer per [Chapter 10](#), paragraph 10.19.
- e. Designate in writing a W&B Officer.
- f. Designate in writing the ordnance certification board members; OINCs may designate members if granted this authority.
- g. Sign and date the certification letter for EAs and technicians.

3.5.1.8 COs shall assign officers to billets only after carefully reviewing the background and experience of each individual, and after considering workload, span of control, and specific needs of the activity. All management and division billets will be filled before assigning assistants or branch heads. To ensure continuity in the maintenance effort, an aviation ground officer will be assigned to the billet of the O-level activity's MO, AMO, or MMCO. If the MO is an aviation ground officer, then the AMO, if assigned, MMCO, or QA Officer must be an aviator or a NFO assigned to duty in a flying status. Officers assigned to

the MO and the MMCO billets shall remain in these billets for a minimum of 1 year. For deploying squadrons, this period of assignment shall include the full work up and deployment cycle.

3.5.1.9 Although the assignment of an aviation ground officer is desirable, the above assignment policy does not apply to OMDs or detachments with four or less aircraft where manning documents or tables of organization do not authorize ground officer billets.

3.5.1.10 For Marine Corps, the IMA officer is referred to as the MALS MO whose responsibilities are contained in [Chapter 4](#).

3.5.1.11 Supply corps officers assigned to duty in deployable squadrons will be assigned as material control officers. Additional related duties may be assigned as determined by the CO.

3.5.2 Maintenance Officer (MO) and Assistant Maintenance Officer (AMO) Qualifications

3.5.2.1 Essentially, the depth of knowledge required in any given area identified is a local management decision based on the requirement of a specific billet. Even though the depth of knowledge required has not been definitely stated, some degree of understanding in each of the general areas specified is considered essential. Certain qualifications can only be gained through prior assignment and experience; thus, there would be no formal education or training requirement. Conversely, other basic qualifications can only be acquired through formal schooling, for example, aviation supply fundamentals, management principles and techniques, MIS and principles of MIS design, NTCSS Optimized NALCOMIS, mid-tier data replication, ADW data management, and basic fundamentals of industrial management. While Aviation Maintenance Officer School is viewed as the basic qualifications course, there are various other training programs, both inside and outside the naval establishment, that are used in support of the total training program. The objectives of identifying the qualification requirements for the various types of billets are to establish the training requirement and experience level and to provide a checklist against which individuals can evaluate their level of knowledge and are aware of deficient areas.

3.5.2.2 There are certain general qualification elements that apply to all functional areas of maintenance management. For those officers whose career specialty is maintenance, the basic requirements are considered an essential prerequisite for the initial assignment to a maintenance billet. This is followed by more advanced, specialized education and training at specifically identified points up through the normal career pattern. For those officers with a career specialty other than maintenance, the basic requirements, although equally valid for optimum effectiveness in a maintenance management billet, cannot, in most cases, be realistically attained prior to first assignment. Nevertheless, there are certain elements of qualification that are considered essential regardless of an officer's specialty. The absolute minimum to ensure reasonable effectiveness is:

a. A general familiarity with the principles of management and motivation theory which encompass basic understanding of the principles of management (planning, organizing, staffing, directing, and controlling).

b. A familiarity with the concepts relating to the planning for and management of change; knowledge of the concepts relating to responsibility, effective two-way communication, and the delegation of authority.

c. A knowledge of the NAMF in sufficient depth to ensure understanding of the Navy Department organization and the relationships relating thereto; the determination and assignment of maintenance responsibility, and the organizational functions of a typical fleet aviation maintenance organization.

d. A basic understanding of MIS and MIS design with emphasis on the Aviation 3M System and NTCSS Optimized NALCOMIS that encompasses the following:

(1) Knowledge of aviation 3M and NTCSS Optimized OMA NALCOMIS documentation procedures and controls including of the foundation tier, mid tier, and top tier information technology applications.

(2) An understanding of the basic principles of management system design to include methods of determining management requirements, system flow charting, and input and output analysis techniques as related to cost trade off considerations.

(3) An understanding of aviation 3M reports pertinent to O-level/I-level maintenance operations and ad hoc capabilities pertinent to NTCSS Optimized OMA NALCOMIS.

e. A basic working knowledge of manpower administration policies and procedures. Familiarity with the following is considered essential:

- (1) NEC or MOS assignment policy and procedures.
- (2) Enlisted evaluation and advancement in rate/rank (Marine Corps) requirements.
- (3) AMD and Manpower Authorization Request (OPNAV 1000/4A). (Not applicable to Marine Corps.)
- (4) Naval Officer Billet Coding and P codes. (Not applicable to Marine Corps.)
- (5) Officer fitness reports, preference cards, officer assignment policy, and career rotation patterns.
- (6) Education and training documents setting forth requirements for, and availability of, various courses of instruction.

f. A working knowledge of aviation maintenance administration policies and procedures. General areas are:

- (1) Navy directive system.
- (2) Naval correspondence format and procedures as related to aviation maintenance.
- (3) Handling of classified material including correspondence and equipment systems.
- (4) Various types of reports, format, and frequency of submission.
- (5) Aviation maintenance publications and directives, aircraft and equipment manuals, related material publications and various other documents, instructions, and notices.
- (6) Naval Aviation Safety Program with specific emphasis on command responsibilities and relationships, procedures for handling mishap claims, submission of mishap reports, and composition and function of aircraft mishap boards.
- (7) Knowledge of aircraft logbooks, AESR, MSRs, ASRs, EHRs, SRCs, CM ALS, W&B logbooks, and AIRs necessary for the transfer and receipt of aircraft.

g. An understanding of aircraft and equipment servicing, maintenance, safety, and operating procedures, ashore and afloat. Included, in general terms are:

- (1) Safe, efficient servicing and maintenance of aircraft and equipment.

- (2) Proper positioning, security, and operation of SE.
 - (3) Hangar deck utilization and safety precautions.
 - (4) Ordnance handling and safety precautions.
 - (5) Aircraft and equipment tie-down requirements for all weather conditions.
 - (6) Aircraft high-power turnup requirements and procedures.
 - (7) HMC&M procedures including the application and requirements of local policies and procedures as they pertain to maintenance.
- h. A general understanding of aircraft systems and equipment in sufficient depth to provide the basis for more specialized concentration in avionics, armament, airframes, ALSS, power plants, and SE as related to type of aircraft.
- i. A general understanding of the types of aircraft and equipment corrosion identification and inspection procedures, corrosion prevention measures, and corrective actions when required.
- j. A working knowledge of Maintenance/Production Control and Material Control policies and procedures including:
- (1) Supply and maintenance relationships and coordination requirements.
 - (2) Material requirement and reporting procedures.
 - (3) Classification and identification of aeronautical material.
 - (4) Financial management and flying hour cost reporting.
 - (5) Custody and control of material.
 - (6) SE management.
- k. An in-depth knowledge of aviation supply as related to the aviation maintenance function. An understanding of the following is considered essential:
- (1) Navy supply system fundamentals, including terms in use, basic supply instructions and documents, function of ICPs, NSNs, PN assignment policy and procedures, requisition document flow, open purchase process, surveys, custody and subcustody procedures, and other related requirements.
 - (2) Aviation supply system fundamentals, which include a basic understanding of weapon systems acquisition, fleet introduction process, supply distribution system, repairables pipeline, allowance lists, logistic management codes, cross-reference lists, weapon equipment lists, IPBs for aircraft, engines, and various other publications.
 - (3) Aviation funding and financial management with emphasis on use and control of flight operational funds, AFM funds, AVCAL funds, the resources management system, and aviation DLRs.
 - (4) Method of compiling the AVCAL and procedures for adjustment and replenishment, material receipt, control, and inventory, and procedures under the SUADPS.

(5) Local aviation supply support policies including fleet level support procedures and departmental relationships, NMCS, PMCS expediting, material management policies relating to the LRCA, PEBs, IMRL review and revision, and methods of measuring performance.

1. An understanding of HAZMAT/HAZWASTE procedures including the application and requirements of local policies and procedures as they pertain to aviation supply.

3.5.3 Maintenance Officer (MO) Duties and Responsibilities

3.5.3.1 As head of the Maintenance Department, the MO manages the department and is responsible to the CO for the accomplishment of the department's mission. CV IMA MOs shall also coordinate the Air Wing Training Plan to ensure billet requirements, personnel identification, and assignments are satisfied. The MO will ensure the ASM is conducted per ACC/TYCOM directives.

3.5.3.2 The MO shall:

- a. Administer the operation of the Maintenance Department per the NAMP.
- b. Ensure redundancy of component repair capabilities within an IMA is avoided wherever possible by employing sound management practices in the handling of personnel, facilities, material, and in work flow methods. To prevent redundancy of repair capabilities, consideration should be given to established IMA repair capabilities when establishing an ICRL for SE components.
- c. Define and assign responsibilities, functions, and operations per existing directives.
- d. Organize the department and initiate requests for, and make recommendations relative to, changes concerning personnel, facilities, and equipment required to accomplish assigned tasks.
- e. Ensure the accomplishment of training for permanently and temporarily assigned personnel.
- f. Analyze the mission accomplishment and capabilities of the department and ensure timely planning is conducted and a statement of requirements to meet future needs is initiated, using reports provided by the MDS or NTCSS Optimized NALCOMIS on a continuous and progressive basis.
- g. Ensure full and effective employment of assigned personnel.
- h. Ensure the production output of the department is of proper quantity and quality per applicable specifications and directives.
- i. Maintain liaison with other department heads, representatives of higher authority, and other maintenance organizations. Liaison will include attendance at monthly IMA and Supply Department interface meetings.
- j. Publish and ensure internal compliance with maintenance, safety, and security procedures to ensure optimum performance is achieved.
- k. Schedule and hold periodic planning and informational meetings.
- l. Ensure the auditing of all maintenance programs and processes per [Chapter 10](#).
- m. Provide aviation 3M Summaries to show use of manpower, equipment, and facilities to the CO and other superiors in the chain of command, when requested.

n. Ensure the IMRL is frequently reviewed and necessary changes submitted, accurate equipage records are maintained, and required reports are submitted.

o. Ensure the NMCS/PMCS status listing is validated, certified, and returned to supply on a daily basis. Each validated NMCS/PMCS requirement shall positively reflect an item or component which is absent, defective, or nonfunctional in the aircraft.

p. Ensure the efficient operation of the MDS or NTCSS Optimized NALCOMIS.

q. Ensure applicable publications and directives are disseminated throughout the maintenance department.

r. Recommend qualified candidates for engine turnup authorization (fixed/rotary wing).

s. Chair the Plane Captain Selection and Examining Board.

t. Ensure local instructions and procedures are compatible with the MDS or NTCSS Optimized NALCOMIS.

u. Ensure each Work Center Supervisor thoroughly understands the importance of the MDS or NTCSS Optimized NALCOMIS, its operation, and the need for continual accuracy.

v. Ensure supervisory and QA personnel are thoroughly familiar with compass calibration requirements per MIL-STD-765A.

w. Use maintenance management teams, as required, in support of efficient maintenance material practices by the Maintenance Department.

x. Use the on-site COMNAVAIRSYSCOM/NATEC field service representatives (as required) to effect liaison and support for the NAMP.

y. Schedule and conduct a monthly maintenance and material planning R} meeting (I-level officer only).

z. Ensure qualification and recertification is accomplished for personnel performing special processes, for example, welding and NDI.

aa. Ensure establishment and implementation of an effective program for NDI of critical aircraft components and structures.

ab. Be responsible for the overall management of NALCOMIS.

ac. Coordinate with Selective Reserve Program Manager for drilling reservists to augment the O-level/I-level activity's manning when in an active status with valid NECs.

3.5.3.3 The MO provided with portable x ray equipment is responsible to the CO to ensure all x ray radiation and radiographic operations and safety precautions are performed by qualified NDI technicians. The MO shall further ensure such personnel comply with all operational x ray safety regulations in NAVSEA S0420-AA-RAD-010.

NOTE: NAVSEA S0420-AA-RAD-010 takes precedence over radiation safety procedures contained in NAVAIR 01-1A-16.

3.5.3.4 The MO, in addition to the above functions, shall:

- a. Designate, in writing, QARs, CDQARs, and CDIs A} and list these designations in the MMP.
- b. Review completed work center audits.
- c. Sign SE and jet engine test cell operator licenses.
- d. Designate, in writing via the MMP, all persons authorized to sign logbook/record entries.
- e. Designate where all aircrew personal equipment records, R} VFS CADPAD TRACE LIFE SUPPORT MODULE, and files shall be maintained.
- f. Establish delivery/pickup points for material as mutually agreed upon by Supply.
- g. Revoke SE licenses for reasons outlined in [Chapter 10](#), paragraph 10.16.
- h. Ensure VFS CADPAD, TRACE CADPAD and TRACE LIFE SUPPORT Modules are used to effectively manage ALSS, and accurately track and report all installed explosive devices (aircraft and egress system).
- i. Designate an AIRSpeed Officer.
- j. A} Review and approve in writing the MMP prepared by the MMCO.

NOTE: A} If distribution of the MMP is accomplished by current information technologies, an original signed paper document shall be maintained within the Maintenance Department.

- k. A} Additional MO responsibilities are in each of the NAMPSOP maintenance programs ([Chapter 10](#)).

3.5.3.5 D}

3.5.3.6 R} A monthly maintenance planning meeting will be convened by the I-level MO to coordinate and improve the overall maintenance program. Maintenance and supply representatives from all supported activities on board including weapons departments shall attend.

3.5.3.6.1 R} O-level maintenance representatives will be prepared to discuss the quantity and types of support required, including the schedule of components due for check and test. All factors affecting the anticipated I-level workload should be presented by the squadron representatives, for example, operational commitments, deployments, TD compliance, and high time component removals that may affect flying hour program funds.

3.5.3.6.2 **R** Weapons Department representatives will be prepared to provide:

- a. A projected schedule of AWSE inspections, items requiring test and check, and anticipated receipts and transfers.
- b. All known WSE TD incorporation requirements.
- c. Identification of known or anticipated AWSE end items or components to be returned to the I-level for maintenance beyond the capability of the Weapons Department.

3.5.3.6.3 **D**

3.5.4 Assistant Maintenance Officer (AMO) Duties and Responsibilities

3.5.4.1 The AMO is assigned, receives the same training, and is qualified under the guidelines listed in the preceding paragraphs.

3.5.4.2 As assistant head of the Maintenance Department, the AMO shall:

- a. Assist the MO in the performance of duties and keep the MO fully informed of matters concerning the department.
- b. Make recommendations to the MO for improved departmental policies and ensure efficient and full use is made of the capabilities and facilities of the department.
- c. Ensure staff divisions conform to established policies.
- d. Initiate and review correspondence.
- e. Supervise and coordinate department administrative responsibilities with other departments or divisions as required.
- f. Conduct liaison of personnel matters in the department with the Administration Department.
- g. Determine the apportionment of maintenance personnel assigned to the department and monitor/coordinate the assignment of TAD personnel to other activities. Personnel assigned TAD to IMAs will be used only in support of the I-level maintenance effort and within the normal spectrum of their technical specialties.
- h. Control classified material, excluding technical manuals and letter-type directives, required by the department.
- i. Determine requirements for, and ensure establishment of, transportation and communication systems to provide complete support of the workload.
- j. Assign spaces to the various divisions and establish the responsibility for security and cleanliness of such spaces (O-level only).
- k. Conduct inspections of assigned spaces.

- l. Perform the functions of the Administrative Officer in the absence of one.
- m. Manage the SE Training and Licensing Program (O-level only).
- n. If operating Legacy or NTCSS Optimized NALCOMIS, ensure the SA/A has an NEC 6315/MOS 6049.
 - o. If operating Legacy or NTCSS Optimized NALCOMIS, establish and ensure formal in-service and informal training is conducted on Legacy or NTCSS Optimized NALCOMIS operation.
 - p. Act as liaison with the Operations Department in the reporting of Mission Area-Specific Resource Rating for personnel.
 - q. When reliable internet access is available, maintain and employ an NTMPS/FLTMPS account for maintenance manpower management purposes.

3.5.4.3 Additional AMO responsibilities are identified in the following NAMPSOP maintenance programs in [Chapter 10](#).

Maintenance In-Service Training Program (paragraph 10.1)
Technical Directive Compliance Program (paragraph 10.10)
Tool Control Program (paragraph 10.12)
Plane Captain Qualification Program (paragraph 10.14)
Support Equipment Operator Training and Licensing Program (paragraph 10.16)

3.5.4.4 The Maintenance Administration Division is assigned under direction of the AMO and shall provide administrative services for the Maintenance Department.

3.5.4.5 Responsibilities. Both O-level and I-level administration divisions shall:

- a. Prepare maintenance related correspondence.
- b. Maintain correspondence per SECNAV M-5210.2.
- c. Establish and control a central maintenance reporting and record keeping system for all administrative reports and correspondence, including a tickler file to assure timely submission of recurring reports.
- d. Implement all directives concerning distribution, retention, and disposition of administrative records and reports.
- e. Provide clerical and administrative services for the department.
- f. Maintain a master maintenance message board of current messages, annotated with appropriate action taken.
- g. Keep a message history file by DTG for a minimum of 6 months.
- h. Reproduce, as necessary, and distribute incoming messages and other data.
- i. Coordinate department administrative and security responsibilities with other departments and divisions (as required).
- j. Distribute nontechnical information and publications.

k. Maintain a master file of nontechnical instructions. (Internal control and distribution of the NAMP is the responsibility of the QA Division Central Technical Publications Librarian.)

l. Maintain a current organizational roster board, automated or manual, which will include, as a minimum, name, rate, and billet assignment in conjunction with the AMD. Optionally, this function may be performed by the MP&T Coordinator (where assigned).

3.5.4.6 In addition, I-level administration divisions shall:

- a. Conduct liaison with the Administrative Department regarding personnel.
- b. Safeguard and distribute personal mail to department personnel, when appropriate.
- c. Distribute approved locally issued reports and studies.
- d. Control department classified material.
- e. Establish and coordinate department training requirements and obtain school quotas to support department training requirements for activities without an MP&T Coordinator.
- f. Coordinate transportation and communication requirements for the department.
- g. Assign spaces to the various divisions and establish the responsibility for security and cleanliness of such spaces.
- h. Assume responsibility for the cleanliness and security of vacant or unassigned maintenance spaces.
- i. Arrange department participation in joint inspections of facilities assigned to tenant activities, especially incident to the arrival or departure of a tenant activity.

3.5.5 Maintenance Material Control Officer (MMCO) Duties and Responsibilities

3.5.5.1 The MMCO is assigned, receives the same training, and is qualified under the guidelines in this chapter. For the Marine Corps, Maintenance Material Control is called Production Control.

NOTE: In the Weapons Department, the functions and responsibilities of this position may not be handled by an officer due to the limited number of officers assigned to that department. However, the importance of the functions and responsibilities is not diminished by the assignment of a highly responsible and qualified petty officer or chief petty officer. The weapons officer may also choose to combine this position with another, such as work center supervisor. The person filling the position need not attend the Aviation Maintenance Officer School.

3.5.5.2 The MMCO is responsible to the MO for the overall productive effort and material support of the department and division. The MMCO shall:

- a. Coordinate and monitor the department workload.
- b. Maintain liaison with supporting activities and the Supply Department, for example, the Supply Department of the MALS, to ensure requirements and workload are known and satisfied.
- c. Control daily workload and assign work priorities to ensure efficient movement of components through the department. Where physically possible, Maintenance Control/Production Control will have an alternate means of communication, independent of telephones, with all work centers.

- d. Review PMS publications, and local MRCs and ensure compliance.
- e. Ensure the full capability of the department is used in supporting the department workload.
- f. Review monthly summaries, MDS and NTCSS Optimized NALCOMIS reports to ensure effective use of personnel, equipment, and facilities.
- g. Maintain aircraft logs, associated equipment CM ALS and SE records, including W&B data (in conjunction with the Operations Department), and inventory logs.
- h. Furnish technical advice and information to the supporting Supply Department concerning the identity and quantities of supplies, spare parts, LRCA components, engines, and propellers to accomplish the assigned workload.
- i. Plan material requirements to support the department workload.
- j. Establish and operate tool rooms in support of the TCP.
- k. Review the allowance lists and the IMRL for adequacy, and initiate action for revision as required.
- l. Keep the MO/AMO advised of the overall workload and material situation as it affects the department.
- m. Establish procedures to ensure limits of life limited components are not exceeded.
- n. Monitor, evaluate, and ensure documentation of cumulative ABDR actions to identify flight or system operational restrictions or limitations to ensure continued airworthiness.
- o. Ensure divisions assign qualified personnel for the completion of scheduled maintenance and inspections.
- p. Establish maintenance procedures to ensure all SE, that the activity has IMRL reporting responsibility for, is properly maintained and actively pursue repair/rework to restore non-RFI/non-RFU SE to RFI/RFU condition. Prior to placing SE in long term preservation ensure that SE is RFI/RFU and calibration requirements are placed in inactive status. NDI and load test requirements are suspended while SE is in preservation. Refer to [Chapter 10](#), paragraphs 10.17 and 10.18 for additional guidelines.
- q. **R}** Conduct a monthly meeting within the Maintenance Department to finalize the MMP and ensure supervisory personnel are aware of upcoming requirements. The meeting will be used to present the proposed plan and discuss problems, requirements, support, and other factors involved in the overall maintenance effort.
- r. **R}** Prepare the MMP for the MO's review and approval in writing.

NOTE: The format and detailed arrangement of the MMP is the prerogative of the MO.

- s. **A}** The O-level MMP will contain the following minimum information:
 - (1) Projected known operational commitments, including number of flights, flight hours, and aircraft use. (This information may be obtained from the Operations Officer.)
 - (2) Aircraft scheduled inspection due dates.
 - (3) Schedule of phase or PMI inspection planning meetings.

- (4) Dates of scheduled receipts/transfers of aircraft and required maintenance actions.
- (5) PME calibration requirements. (MEASURE format 800, if verified as accurate, may be used to determine these requirements.)
- (6) Schedule of technical training. (A separate Monthly Maintenance Training Plan may be prepared and distributed with the MMP as an alternative ([Chapter 10](#), paragraph 10.1)).
- (7) Forced removal items, for example, high time.
- (8) TD compliance requirements.
- (9) Current list of QA personnel; QARs, CDQARs, and CDIs.
- (10) Schedule of personnel due ejection seat safety checkout.
- (11) SE scheduled inspection due dates.
- (12) Scheduled NDI requirements.
- (13) Listing of QA audited programs and program managers/monitors.
- (14) Currently designated plane captains.

NOTE: These minimum information requirements may be enclosures produced by current information technology reports. Current information technology databases are also optional. In such a case, the database locator sheet shall be included in the MMP. If this option is used, strict security safeguards shall be enforced for appropriate administrator and read-only access levels.

t. A} The I-level MMP will contain the following minimum information:

- (1) Projected schedule of items to be inducted for check and test from supported squadrons, weapons departments, air departments, and supply activities (as applicable).
- (2) Projected on flight line NDI requirements.
- (3) Anticipated changes in the workload due to operational commitments of supported activities.
- (4) Schedule of technical training. (A separate Monthly Maintenance Training Plan may be prepared and distributed with the MMP as an alternative ([Chapter 10](#), paragraph 10.1)).
- (5) Schedule of maintenance requirements for shop installed SE, for example, NF 27T-10, tire breakdown equipment, and engine test cells, whether requirements are by COMNAVAIRSYSCOM or local MRCs.
- (6) Other known or anticipated factors affecting the production effort.
- (7) TD compliance requirements.
- (8) Current list of QA personnel; QARs, CDQARs, and CDIs.
- (9) Forced removal items, for example, high time.
- (10) Listing of QA audited programs and program managers/monitors.

NOTE: These minimum information requirements may be enclosures produced by current information technology reports. Current information technology databases are also optional. In such a case, the database locator sheet shall be included in the MMP. If this option is used, strict security safeguards shall be enforced for appropriate administrator and read-only access levels.

- u. A} Distribute the MMP to key maintenance personnel within the activity.

NOTE: Distribution may be accomplished by current information technologies. For example, e-mail attachment, server-based, and web-based. If this option is used, strict security safeguards shall be enforced for appropriate administrator and read-only access levels.

(1) The O-level R} MMP shall be distributed by the 25th of the month prior to the month to which it applies, for example, the April plans would be published by the 25th of March. The supporting I-level shall be in the distribution.

(2) The I-level/MALS R} MMP shall be distributed by the last day of the month prior to the month to which it applies.

3.5.5.2.1 In addition, the O-level MMCO shall:

- a. Submit MAF or WO work requests to the supporting IMA for those functions beyond the capability or responsibility of the activity.

- b. R} Conduct a planning meeting in advance of each phase or PMI inspection.

- c. Attend the monthly maintenance meeting held by the supporting I-level.

- d. Establish procedures for controlling cannibalization.

- e. Ensure FCFs are conducted (as required).

- f. Establish procedures to monitor the SCIR System and such other reports (as required).

- g. Ensure the Equipment Master Roster (E-00) is kept current to reflect those inventory and status changes that occur during the reporting period. The Equipment Master Roster (E-00) does not exist if operating NTCSS Optimized OMA NALCOMIS.

- h. Maintain close liaison with QA, particularly when major components are changed. Maintenance Control shall take the initiative to inform QA when such changes occur.

- i. Provide pilots and aircrews with a record of aircraft discrepancies and corrective actions for the preceding 10 flights of the aircraft.

- j. Validate the NMCS/PMCS status listings on a daily basis.

- k. If operating Legacy or NTCSS Optimized OMA NALCOMIS the MMCO will:

- (1) Coordinate and monitor NALCOMIS in relation to the O-level maintenance evolution.

- (2) Establish liaison between the supply activity and the O-level to ensure all automated NALCOMIS supply processes are used and streamlined.

- (3) Ensure ADBs are validated daily against the database reports.

(4) Ensure MRCs are entered into the Legacy NALCOMIS OMA database as changes occur to the MRC decks.

(5) Ensure all subsystems within the scope of NALCOMIS OMA (assets, maintenance, logs and records) are kept updated. For NTCSS Optimized OMA NALCOMIS ensure CM ALS is kept updated.

3.5.5.2.2 **D}**_____.

3.5.5.2.3 In addition, I-level MMCOs shall:

- a. Establish procedures for reviewing and approving work requests from supported activities and assigning work priorities for them.
- b. Establish procedures for monitoring component repair capability.
- c. Establish and operate the aeronautical material screening unit.
- d. Establish procedures for ensuring proper material usage reporting.
- e. Ensure MRCs are entered into the SESS or Asset Management for Legacy NALCOMIS databases as changes occur to the MRC decks.

3.5.5.3 Additional MMCO responsibilities are identified in the following NAMPSOP maintenance programs [Chapter 10](#).

Navy Oil Analysis Program (paragraph 10.3)

Technical Directive Compliance Program (paragraph 10.10)

Tool Control Program (paragraph 10.12)

Corrosion Prevention and Control Program (paragraph 10.13)

Support Equipment Planned Maintenance System Program (paragraph 10.17)

Individual Component Repair List Program (paragraph 10.20)

3.5.6 Material Control Officer Duties and Responsibilities

3.5.6.1 Supply Corps officers assigned to a deployable squadron will be assigned as the Material Control Officer. If assigned to a carrier deploying squadron, the Material Control Officer shall be TAD to the carrier Supply Department during work-ups and deployment while the assigned squadron is onboard.

NOTES: 1. The TAD requirement only applies to Supply Corps Officers (if any) assigned to an aircraft carrier deploying squadron. It does not apply to non-Supply Corp Officers assigned as O-level Material Control Officer.

2. If Marine squadrons (F/A-18) are attached to a CVW and the assigned Material Control Officer has Aviation Supply Occupational Specialty/Field (or MOS), then the TAD requirement will be applicable when onboard the CV/CVN.

THIS PAGE INTENTIONALLY LEFT BLANK.

3. For L- Class, the TAD requirement only applies to Marine Units with limitation as to the number of TAD. It is not applicable to Helo AVDETS deploying with the L- Class.

3.5.6.2 The Material Control Officer is responsible to the MMCO for the operation of the Material Control Division which serves as the point of contact within the maintenance organization that provides support for the material requirements of that organization. The Material Control Officer shall have:

a. Familiarity with the aviation 3M and NTCSS NALCOMIS Optimized OMA/IMA documentation procedures and reports as they relate to supply application.

b. A working knowledge of Maintenance/Production Control, Material Control, local supporting supply activity, supply system policies and procedures relating to:

- (1) Supply and maintenance relationship and coordination requirements.
- (2) Material requirements and reporting procedures.
- (3) Classification and identification of aeronautical material.
- (4) Custody and control of material.
- (5) SE management.

c. An in-depth knowledge of aviation supply as related to the aviation maintenance function and understanding of the following:

(1) Navy supply fundamentals, including terms in use, basic supply instructions and documents, functions and responsibilities of NAVICPs and other related supply system agencies. Navy Supply System's policy and procedures to include MILSTRIP requisition format and document flow, open purchase process surveys, custody and subcustody procedures, and other related requirements.

(2) Aviation supply fundamentals, including a basic understanding of weapon systems, fleet introduction process, supply distribution system, repairables pipeline, allowance lists, logistic management codes, cross-reference lists, weapon equipment lists, IPBs for aircraft engines, and various publications.

(3) Aviation funding and financial management with emphasis on use and control of flight operational funds, AFM funds, AVCAL and SHORCAL funds, the resource management system, and aviation DLRs.

(4) Methods used in developing AVCAL and SHORCAL, procedures for allowance adjustment and stock replenishment, material receipt and issue, control and inventory, and procedures under the NTCSS RSUPPLY.

(5) Local aviation supply support policies including fleet level support procedures and departmental relationships, NMCS/PMCS requisitions expediting, material management policies relating to the LRCA, PEBs, IMRL review and revision, and methods of measuring internal and external supply support performance.

(6) An understanding of HAZMAT/HAZWASTE procedures including the application and requirements of local policies and procedures as they pertain to aviation supply support.

3.5.6.3 The Material Control Officer shall:

- a. Ensure squadron requirements for parts and material are forwarded to the supporting ASD in a timely and consistent manner.
- b. Ensure parts and material received are expeditiously routed to the applicable work center and not allowed to accumulate at the designated delivery/pick up point.
- c. Ensure tracked repairable components are accompanied with the applicable AESR, ASR, EHR, or SRC card upon receipt from, or turn in to, the supporting ASD.
- d. Establish secure material/equipment delivery and pick up point.
- e. Establish and maintain liaison with the supporting ASD on material requirement matters to ensure that material needs of the organization are always met in a timely manner. In addition, the Material Control Officer shall serve as the primary POC between the organization and the supporting ASD on all matters relating to aviation supply support.
- f. Prepare documents for material required for operational support, such as aviation fuels and lubricants, flight clothing, and related personal equipment to include other material carried in service outlets (SERVMART, etc.).
- g. Establish procedures and ensure the proper operation of tool rooms to include the conduction of required tool inventories.
- h. Ensure survey documents for lost, missing, or damaged applicable material and equipment are initiated in a timely manner and prepared per directives.
- i. Ensure proper OPTAR accounting and budgeting is accomplished and a separate material control register is maintained for each OPTAR held.
- j. Ensure the appropriate funding is being charged when submitting organization material requirements, such as OFC 01 for aircraft flight operations and administrative supplies and OFC 50 for aircraft maintenance.

NOTE: Chapter 5 contains more detailed information regarding appropriate AFM charges.

- k. Be responsible for the management of the TCP.
- l. Ensure the proper management and inventory control of IMRL and other authorized material/equipment at all times.
- m. Ensure the NMCS/PMCS requisition validations are accomplished per the current established procedures provided by higher authority.
- n. Ensure accurate and timely response is provided to the supporting ASD during the internal and external MOVs.
- o. Ensure proper and complete inventories are conducted, inventory log entries are made, and inventory shortages listings are prepared for inclusion in the AIR during aircraft receipt and transfer.
- p. Assist the local supporting ASD in enforcing the one-for-one exchange rule when an aircraft repairable component is ordered by the supported work center. In addition, ensure the proper documentation is attached to the turn-in component prior to pick up by the representative of the supporting supply activity.
- q. Develop and ensure procedures are in place in support of the BOSS Program.

- r. Coordinate with the supporting ASD and provide TAD requirements (Storekeeper) (if applicable).
- s. Participate in AVCAL, SHOCAL and SASS conferences and other Supply and logistics meetings.

3.5.7 Division/Branch Officer Duties and Responsibilities

3.5.7.1 In addition to the functions of naval officers in U.S. Navy Regulations, each Division Officer shall:

- a. Be responsible to the MO for all tasks assigned in support of the department.
- b. Use the most effective and economical procedures possible to accomplish assigned tasks.
- c. Efficiently employ personnel and resources to ensure the necessary quantity and quality of work.
- d. Ensure full employment of assigned resources, and a continuing effort to perfect the division's organization and procedures.
- e. Assign personnel to billets making sure they understand their duties and how those duties contribute to the work of the division, the department, and the command. Motivate personnel so they commit their talents and energies to the functions of the division.
- f. Ensure security of aircraft and SE, adequacy of tools in support of the TCP ([Chapter 10](#), paragraph 10.12), cleanliness and security of assigned working areas, and adherence to handling procedures for classified material.
- g. Provide provisioning actions as necessary.
- h. Ensure compliance with maintenance programs for assigned IMRL SE ([Chapter 3](#)).
- i. Ensure personnel comply with all safety instructions.
- j. Prepare and submit for publication such additional safety instructions as required in concert with the command's safety program.
- k. Ensure TDs are translated into appropriate maintenance actions.
- l. Nominate personnel as candidates for CDQARs and CDIs to the QA Officer.
- m. Assist in implementing the Corrosion Prevention and Control Program. In coordination with the Corrosion Prevention and Control Program Manager, conduct training in corrosion detection and prevention and continually emphasize proper cleaning procedures and cautious use of corrosion preventive materials, tools, and equipment. In addition to the airframe, ensure corrosion detection and reporting on all associated components, equipment, and immediate adjacent areas are accomplished during the performance of all maintenance and inspections.
- n. Ensure directives and publications routed by the MO are incorporated in the Active Required Reading File.
- o. Ensure the philosophy of repair at the lowest level of maintenance is pursued, using BCM review procedures and improvement of repair capability procedures ([Chapter 5](#)).
- p. Develop an understanding of NALCOMIS concepts and its application to management and MIS requirements. If operating NTCSS Optimized NALCOMIS, develop an understanding of CM ALS and its application to management and data replication.

- q. Keep the MMCO informed of problems that may affect department or division output.
- r. Be directly responsible to the MMCO in all matters that may affect department or division output if the support services division is established.
- s. Ensure all appropriate aircraft and SE publications are available and screened to ensure proper maintenance is performed.
- t. Become knowledgeable of MDS reporting procedures and reporting capabilities in NTCSS Optimized NALCOMIS.

3.5.7.2 Additional Division Officer responsibilities are identified in the following NAMPSOP maintenance programs in [Chapter 10](#).

- Maintenance In-Service Training Program (paragraph 10.1)
- Fuel Surveillance Program (paragraph 10.2)
- Navy Oil Analysis Program (paragraph 10.3)
- Naval Aviation Maintenance Discrepancy Reporting Program (paragraph 10.9)
- Foreign Object Damage Prevention Program (paragraph 10.11)
- Tool Control Program (paragraph 10.12)
- Egress/Explosive System Checkout Program (paragraph 10.15)
- Support Equipment Operator Training and Licensing Program (paragraph 10.16)
- Naval Aviation Metrology and Calibration Program (paragraph 10.18)
- Hazardous Material Control and Management Program (paragraph 10.19)
- Individual Component Repair List Program (paragraph 10.20)
- Electromagnetic Interference/Electrostatic Discharge Program (paragraph 10.21)

3.5.7.3 Specific Division Officer Responsibilities

3.5.7.3.1 The Line Division Officer is responsible for the external condition of aircraft with regard to cleanliness and the day-to-day detection and reporting of corrosion attack and the failure of protective coatings.

3.5.7.3.2 Additional QA Officer responsibilities are in each of the NAMPSOP maintenance programs in [Chapter 10](#).

3.5.7.4 Branch Officer. When assigned division officer duties, the Branch Officer shall assume duties per U.S. Navy Regulations and this chapter and management responsibilities for maintenance tasks assigned to the branch. Routine administrative tasks shall be retained at the division or branch level.

3.5.8 Maintenance Department Officer Training Requirements

3.5.8.1 COs shall ensure, as a minimum requirement, all unrestricted line officers assigned to the Squadron Maintenance Department attend the appropriate FASOTRAGRU LANT/PAC or CENNAVAVNTECHTRA course prior to or within 60 days after assuming their duties. Officers who have completed an Aviation Maintenance Officer School course (Naval Aviation Maintenance Program Indoctrination (Course C-4D-2012) or Naval Aviation Maintenance Program Management (Course C-4D-2013)) within the past year are exempt from this requirement. The MO, AMO, Division and Branch officers shall complete Naval Aviation Maintenance Officer Detachment Officer Familiarization (Course D-555-0034). QA Officers shall complete NALCOMIS Optimized OMA Quality Assurance Administration Course (Course D-555-0046).

3.5.8.2 Newly commissioned or designated aviation ground officers (Navy 1520/63XX/73XX and Marine Corps 6002/6004) shall, enroute to their first aircraft maintenance billet assignment, be ordered to the

CENNAVAVNTECHTRA Detachment Milton, FL, to attend either the Naval Aviation Maintenance Program Indoctrination course (Course C-4D-2012) or the Naval Aviation Maintenance Program Management course (Course C-4D-2013). The Naval Aviation Maintenance Program Management course (Course C-4D-2013) is designed for personnel possessing at least 2 years of aviation maintenance or aviation maintenance support experience. The requirement for completion of an Aviation Maintenance Officer School course will be waived only on an individual, case by case basis. Following completion of this school, aviation ground officers will normally be ordered to a replacement squadron, MAW, or MCAS (as appropriate) for further assignment or type aircraft specific training.

3.5.8.3 As part of the Aviation Ground Maintenance Officer Training continuum, the following courses are available through FASOTRAGRU:

- a. Aircraft Weight and Balance (Course D-516-0001).
- b. Naval Aviation Maintenance Control Management for NALCOMIS OMAs (Course D-555-0040).
- c. Naval Aviation Material Control Management (Course D-555-0051).
- d. Financial Management for Naval Aviation Operating Target Accounting (OPTAR) (Course D-555-0018).
- e. Joint Aviation Supply and Maintenance Material Management (JASMMM) (Course A-8B-0020) through the Navy Supply Corps School and Basic Corrosion Control (CNATT-BCC-2.0) through NKO (<https://www.nko.navy.mil>).

3.5.8.4 A} Navy Aviation Maintenance Officer PQS (NAVEDTRA 43428A) is available for ground officers to complete per ACC/TYCOM guidance.

3.5.9 AIRSpeed Officer

3.5.9.1 AIMD Afloat/MALS CO/IMA/I-level FRC equivalent officers, whose activity has undergone a formal AIRSpeed implementation, shall:

- a. Abide by OSD memo 07485-06 regarding the establishment of DOD-wide CPI programs (Lean Six Sigma and TOC). The memo states that every DOD organization is focused every day on improving the effectiveness of our support to the warfighter and will take action to institutionalize CPI efforts including CPI expert certification, guidance documentation, and creation of forums to capture and share best practices across the department in order to create a culture of continuous improvement throughout the DOD. The NAE's CPI effort is called AIRSpeed. Enterprise AIRSpeed enables world class logistics excellence for the NAE in support of T/M/S teams.

NOTES: 1. The AIRSpeed Officer, designated by the MO, shall be assigned for a minimum of 18 months.

2. If manning constraints dictate, the AIRSpeed Officer may be the QA Officer.

- b. Establish an AIRSpeed core team that consists of a minimum of four personnel, to include the AIRSpeed Officer. It shall be an integrated team of maintenance personnel and ASD or supply equivalent. Core team members shall be assigned, for a minimum of 18 months.

NOTE: The AIRSpeed core team member shall be full time when assigned to a CPI design or event.

- c. Maintain a core competency of certified AIRSpeed Green Belts/AIRSpeed TOC experts. The core competency, in addition to the AIRSpeed core team, shall be equivalent to two qualified AIRSpeed Green Belts/TOC experts per each Maintenance and Supply Division. Once assigned, certifications must be achieved within 12 months. These numbers may not be sufficient to meet the SECNAV goal for certified Green Belts, but instead provides each activity with the minimum requirement for AIRSpeed.

NOTE: Small activities may request a deviation for a reduced number of qualified AIRSpeed Green Belt/TOC experts.

- d. Incorporate AIRSpeed CPI events and training requirements into the MMP or appropriate document.
- e. Use BMT reports to monitor and manage activities production and performance.
- f. Use AIRSpeed analysis tools for other activity comparisons and lessons learned, for example, BMT, and CPIMS.

3.5.9.2 AIRSpeed Officer Responsibilities.

3.5.9.2.1 AIMD Afloat/MALS IMA/I-level FRC equivalent officers, whose activity has undergone a formal AIRSpeed implementation, shall:

- a. Be assigned for a minimum of 18 months (O-3, CWO2, civilian or equivalent recommended).
- b. Manage all areas of AIRSpeed training for the activity to include:

NOTE: The AIRSpeed courses and training requirements are identified on the Enterprise AIRSpeed web site (<http://www.cnaf.navy.mil/airspeed>).

- (1) Billet specific training requirements.
- (2) AIRSpeed core team requirements.
- (3) Ensure that all AIRSpeed core members are AIRSpeed Green Belt and AIRSpeed TOC certified within 9 months of assignment.
- (4) Ensure one AIRSpeed core team member shall be certified as an AIRSpeed Black Belt and an AIRSpeed TOC expert.
- (5) Conduct/ensure site design and CPI events staff training.

(6) Maintain a core competency of qualified AIRSpeed Green Belt and AIRSpeed TOC experts. The core competency, in addition to the AIRSpeed core team, shall be equivalent to two qualified AIRSpeed Green Belts/TOC experts per each Maintenance and Supply Division. Once assigned, certifications must be achieved within 12 months. These numbers may not be sufficient to meet the SECNAV goal for certified Green Belts but instead provides each activity with the minimum requirement for AIRSpeed.

NOTE: Small activities may request a deviation for a reduced number of qualified AIRSpeed Green Belt/TOC experts.

(7) Conduct/ensure basic indoctrination training for entire activity. White belt (NKO (<https://www.nko.navy.mil>)) and Yellow belt within 90 days of check in.

(8) Ensure AIRSpeed training is documented in participants training record and Green belts and Black belts are managed in CPIMS.

- c. Function as liaison for all AIRSpeed related issues.

NOTE: Marine Corps MOS designation for the AIRSpeed Officer is 6608.

3.5.9.2.2 AIRSpeed Core Team Responsibilities. AIRSpeed Core Team members shall:

- a. When assigned, coordinate and monitor AIRSpeed implementation, deployment and sustainment initiatives, including AIRSpeed designs and Lean Six Sigma events.
- b. Have a minimum of 18 months remaining on station upon designation or at time of designation of assignment.
- c. Facilitate AIRSpeed design, populate, and update CPI opportunity worksheets.
- d. Activate and implement AIRSpeed design per the AIRSpeed design POA&M.
- e. Maintain integrity of AIRSpeed design, identify, prioritize and execute high impact event opportunities (readiness degraders/type of savings for AIRSpeed events) using the CPI opportunity worksheets.
- f. Choose the appropriate AIRSpeed tool for each event (TOC, Lean Six Sigma).
- g. Use AIRSpeed analysis tools, with updated data, monthly to enhance CPI opportunities, other activity comparisons and lessons learned to focus improvement events, for example, CPIMS or RST.
- h. Record event results in CPIMS within 15 days.
- i. Review original AIRSpeed design quarterly to identify additional opportunities to execute high impact event opportunities. Update design as desired.

NOTES: 1. FRC AIRSpeed Officer/Core Team reports to the MO or FRC Equivalent Officer.

2. OCONUS and Afloat IMA AIRSpeed Officer/Core Team reports to the MO.

3. MALS AIRSpeed Officer/Core Team reports to the MALS CO.

3.5.10 A} Maintenance Master Chief Petty Officer (MMCPO)

3.5.10.1 The MMCPO, a Senior Enlisted Advisor for the Maintenance Department, reports to the MO and advises the CO in all matters affecting aircraft operations, aircraft maintenance, and department personnel. The MMCPO directs all maintenance in an operational unit on a day-to-day basis in support of its operations and assigned missions. The MMCPO's charter is to maintain assigned aircraft and aeronautical equipment in an RFT status while providing training for those in the Maintenance Department to improve the maintenance process.

3.5.10.1.2 The MMCPO's leadership and expertise are essential to the success of the unit. MMCPOs shall be assigned to units based on NEC (8300) and adequate consideration shall be given to past assignment (T/M/S) experience. The MMCPO is assigned and qualified under the guidelines of this instruction.

3.5.10.1.3 MMCPO responsibilities:

- a. Ensure the MMCO is advised of the overall workload and material status of all assigned assets.
- b. Assist with statistical analyses of aircraft incident reports; formulates guidelines for safety inspections and instructions.
- c. Plan, organize, implement, and control activities in compliance with policy statements, operation orders, and directives; forecast future requirements and plan and initiate actions to satisfy requirements.
- d. Prepare staffing studies, reports, and establish goals and priorities.

- e. Ensure the full capability of the department is used in support of its mission by reviewing and evaluating personnel, equipment and material requirements.
- f. Review and evaluate inspection records, QA reports, and flight records to ensure proper maintenance procedures are followed.
- g. Administer inventory, requisition, receipt, and transfer procedures for aircraft, equipment and components. Maintain liaison with support activities (O-level, I-level, and D-level (as appropriate)) and the Supply Department, for example, the ASD of the air station to ensure requirements and workloads are known and satisfied.
- h. Monitor implementation of preventive maintenance program.
- i. Liaison with Navy and Marine Corps units to include other DOD aviation units on maintenance matters.
- j. Coordinate and monitor day-to-day operations within the Maintenance Department. Control daily workload and assign work priorities that ensure efficient movement of components and assets throughout the department. Where physically possible, Maintenance/Production Control will have an alternate means of communications, independent of telephones, within all work centers.
- k. Review monthly AV3M summaries, MDS, and NTCSS Optimized NALCOMIS reports to ensure effective use of personnel, equipment, and facilities. Also review PMS publications and local MRCs and ensure compliance.
- l. Maintain aircraft Logs and Records, associated equipment CM, ALS, ALSS, and SE records and monitor procedures to ensure limits of Life Limited Components are not exceeded.
- m. Provide technical advice and information to the supporting S-6/S-8/ASD concerning the identity and quantities of supplies, components/parts, LRCA components, engines, and propellers needed to manage workload.
- n. In addition to senior personnel (E-7/E-8) within the department, assign all maintenance personnel to billets commensurate with qualifications and expertise to maximize operational readiness. This effort shall be supported by readiness discussions with the MO and AMO.
- o. Ensure division assigns qualified personnel for the completion of scheduled maintenance inspections.
- p. Establish maintenance procedures to ensure all SE that the activity has IMRL reporting responsibilities for, is properly maintained.
- q. Pursue repair/rework to restore non-RFI/RFU to RFI/RFU condition. Prior to placing SE in long term preservation ensures SE is RFI/RFU and calibration requirements are placed in inactive status.
- r. Establish procedures for NDI and load test requirements are suspended while SE is in preservation.

NOTE: The SE PMS Program (Chapter 10, paragraph 10.17) and the Naval Aviation METCAL Program (Chapter 10, Paragraph 10.18) provide additional guidelines.

3.5.10.1.4 The O-level MMCPD shall:

- a. Coordinate the execution of the flight schedule.

b. Manage the Safe for Flight qualification program to include screening candidates, monitoring progress, and making final recommendations to the CO, via the MO, prior to qualification. Coordinate follow-on training to ensure all Safe for Flight designated personnel are up-to-date on the latest procedures established in COMNAVAIRFORINST 5400.1.

c. Coordinate the submission of MAF/WO or work request to the supporting IMA/FRC for those functions beyond the capability or responsibility of the activity.

d. Attend the planning meetings in advance of each phase/calendar inspection.

e. Monitor, via a log, and enforce procedures for controlling and minimization of aircraft cannibalization (Chapter 5).

f. Plan the short and long term aircraft maintenance requirements including D-level maintenance.

g. Ensure FCFs are conducted (as required).

h. Monitor all aviation 3M documentation to ensure proper reporting of maintenance actions.

i. Maintain close liaison with QA, particularly when major components are changed. Maintenance Control shall take the initiative to inform QA when such change occurs.

j. Provide pilots and aircrew a record of aircraft discrepancies or AADB/ADB and corrective actions for the preceding 10 flights (minimum requirement) of the aircraft.

k. Validate the NMCS/PMCS status listings on a daily basis.

l. Assist in the publishing of the MMP.

m. Coordinate and monitor NALCOMIS in relation to the O-level maintenance evolution.

n. Establish liaison between the supply activity and the O-level to ensure all automated NALCOMIS supply processes are used and streamlined.

o. Ensure ADBs are validated daily against the database reports.

p. Ensure MRCs are entered into NALCOMIS OMA database as changes occur to the MRC deck.

q. Ensure all subsystems within the scope of NALCOMIS OMA (assets, maintenance, logs and records) are kept updated.

3.5.10.1.5 The I-level MMCPO shall:

a. Monitor procedures for reviewing and approving work requests from supported activities and assigning work priorities.

b. Coordinate with supported activities MMCPOs on all issues relating to production.

c. At ashore facilities, interface and maintain liaison with D-level customer service activities (as required).

d. Review/manage ICRL to ensure continued readiness and repair capability as well as identify opportunities to interdict possible BCM actions.

Maintenance Function Applicable to:	Level		Note
	O-	I-	
<u>Servicing</u>			
Replacement of fluids (LOX, gaseous oxygen, nitrogen) necessary for maintaining an aircraft weapons system	x	x	1
Removed systems and components		x	
<u>Inspections</u>			
Daily, turnaround, special, conditional, inventory, acceptance, transfer, phase	x	x	1
Functional tests (applicable to ejection seat systems and components)	x	x	1
Functional tests (adjustment/alignment of installed systems/components)	x	x	1
Bench check, functional test, adjustment, calibration, and alignment of removed systems and components		x	
<u>Preservation</u>			
Level I, II, or III	x	x	1
<u>Repair</u>			
Remove/replace aircraft system(s)/components or associated hardware	x	x	1, 2
<u>Machine Operations</u>			
Drilling, cutting, grinding, sawing, dimpling, riveting, and filing	x	x	
Metal and metal machine work (plate, bar, sheet, tubing, rod, wire, and cable), shaping, milling, turning, pressing, forming, flaring, bending, punching, shrinking, stretching, spinning, shearing, swaging, and rolling		x	
<u>Cable, Tube, and Rod Work (Controls)</u>			
Remove and replace	x	x	3
Manufacture, swage, and test cables		x	
<u>Flex Lines and Rigid Tubing</u>			
Remove and replace	x	x	3
Fabrication and testing		x	
<u>Examination and Testing</u>			
Liquid penetrant, eddy current, magnetic particle, optical inspection	x	x	3, 4, 5, 6
Aircraft Confined Space entry authorization	x	x	4, 6, 7
Leak detection, ultrasonic inspection, x-ray process, hardness testing installed or portable equipment		x	3, 4
<u>Paint, Acrylic, and Epoxy Resins</u>			
Strip and refinish parts on aircraft and subassemblies	x	x	1, 3
Paint identification markings on aircraft and components	x	x	1, 3
Brush and spray touch-up of aircraft	x	x	1, 3
Apply acid proof paint	x	x	1, 3
Strip, repair, and refinish fiberglass components		x	
Strip, repair, and refinish composite components		x	
<u>Welding and Soldering</u>			
Oxyacetylene welding and cutting		x	
Electric Arc and Electric Inert Arc welding		x	4
Soldering	x	x	

Figure 3-1: O-Level and I-Level/FRC Maintenance Functions Applicable to Aircraft Systems and Components

Maintenance Function Applicable to:

Maintenance Function Applicable to:	Level O-	I-	Note
<u>Corrosion Control/Treatment</u>			
Strip treat and paint affected areas	x	x	1, 3
Daily wipe down of critical surfaces and fresh water washdown	x	x	1, 3
Strip, treat, and repaint removed components (components removed for other than accessibility)		x	
<u>Cleaning and Plating</u>			
Vacu-blast (portable)	x	x	4, 6
Blasting		x	
Gas turbine engine cleaning	x	x	
Ultrasonic cleaning		x	
<u>Hydraulic Systems Contamination Control</u>			
Sample and analyze hydraulic fluid	x	x	
Clean systems using the recirculation method	x	x	
Flush systems	x	x	
<u>Heat Treating and Baking</u>			
Small parts		x	
<u>Miscellaneous</u>			
Maintain operational pool aircraft assigned to specific ships, stations, and squadrons by the ACC/TYCOM	x	x	
Responsible for loading and offloading aircraft	x		
Repair structural damage	x	x	1, 3
Recovery of crashed aircraft	x	x	1, 3
Process/repair of stricken aircraft systems and components		x	
TD compliance	x	x	1, 3
Incorporate TDs (on removed systems/components)		x	

NOTES

1. Applicable to IMAs that have aircraft assigned.
2. Applicable to IMAs that have the assigned responsibility and resources.
3. Authorized to provide assistance if function is beyond technical capability of the O-level.
4. Use restricted to those personnel currently certified/licensed.
5. Visible dye penetrants (Type II) shall not be used to inspect aircraft, engine, or missile parts or components unless specifically approved by the responsible In-Service Support Center.
6. Equipment required to perform these functions will be subcustodied from supporting IMAs.
7. In a contractor supported maintenance program, responsibilities will be assigned by the ACC/TYCOM.

Figure 3-2: O-Level and I- Level/FRC Maintenance Functions Applicable to Aircraft Systems and Components (continued)

Maintenance Function Applicable to:

	Level		Note
	O-	I-	
<u>Power Plant Systems and Components</u>			
Removal/replacement of components (engine accessories, propellers, rotors linkages, cables, common hardware (installed/uninstalled))	x	x	1, 2, 3
Minor repair of installed engines/APUs	x	x	1, 2
Repair installed/uninstalled engines/APUs by replacement of parts/components (disassembly as authorized for the specific engine model)	x	x	1, 2, 3
Perform installed engine/APU inspections per appropriate MRCs	x	x	1, 2, 7
Perform periodic inspections of engines/APUs normally installed		x	4, 6
Perform periodic inspections of engines/APUs normally uninstalled		x	5, 6
Repair of removed SEGTE and APUs		x	3
Functional test and adjustment (using engine run-up stand)		x	
Preservation/depreservation of installed engines and APUs	x	x	1, 2
Preservation/depreservation of uninstalled engines, APUs, and SEGTEs, including canning/uncanning		x	
Assemble QECAs		x	
<u>Propeller/Rotary Wing Dynamic Drive Systems and Components</u>			
Remove/replace propellers, associated components, and common hardware	x	x	1, 2
Minor repair (blending of metal propeller blades and composite repair of fiberglass blades per applicable publications)	x	x	1, 2
Perform final buildup of quick change rotary wing dynamic drive assemblies	x	x	1, 2
Propeller assembly and disassembly	x	x	8, 9
Preservation/depreservation of removed/uninstalled propellers	x	x	8
Deicer boot replacement and propeller balancing (not applicable to aircraft carriers)	x		
Build up of quick change rotary wing dynamic drive assemblies		x	

NOTES

1. Applicable to IMAs that have aircraft assigned.
2. Authorized to provide assistance if function is beyond technical capability of the O-level.
3. Applicable to IMAs that have the assigned responsibility (NAVAIR NOTE 4700) and resources.
4. Installed engine inspection intervals. Engines inducted for third-/second-degree repair that are maintained per the installed inspection (special/phase) concept shall have the inspection requirements performed as specified in the applicable QECA Engine MRCs/technical manuals.
5. Removed engine inspection intervals.
 - a. Engines inducted for third- and second-degree repair with major inspection intervals of 400 hours or more shall have a major inspection performed by the IMA if 25 percent or less of the inspection interval remains.
 - b. Engines inducted for third- and second-degree repair with major inspection intervals of less than 400 hours shall have a major inspection performed by the IMA if less than 100 hours remain in the inspection interval.
6. Engines inducted for first-degree repair as identified on the maintenance allocation table of the applicable MIM shall have all inspections performed concurrent with the repair. First-degree repairs of a minor nature not requiring an excessive amount of man-hours may have the inspection requirements waived by the ACC.
7. Engine turnup low/high power by qualified personnel.
8. Qualified O-level personnel authorized to perform; propeller assembly and disassembly, preservation and depreservation of removed/uninstalled propellers for the R-391 Dowty Propeller installed on the KC-130J aircraft.
9. Qualified O-level R-391 propeller system; QAR/CDQAR is authorized to sign-off MAFs and QA stamp repaired propeller assemblies "READY FOR ISSUE" for immediate re-installation/acceptance/placement into the contractor supported Aircraft Parts Store, equivalent supply warehouse (issue point) or pool (inventory).

Figure 3-3: O-Level and I- Level/FRC Maintenance Functions Applicable to Power Plant Systems and Propeller/Rotary Wing Dynamic Drive Systems and Components

Maintenance Function Applicable to:

Maintenance Function Applicable to:	Level O-	I-	Note
<u>Cartridges, Pyrotechnics, Cartridge Actuated Devices, and Propellant Actuated Devices</u>			
Breakout, visual inspection	x	x	1
Install/replace in parent equipment	x	x	
Compliance with Notice of Ammunition Reclassifications	x	x	2
TD compliance	x	x	3
<u>Avionic SE</u>			
Operational check and test and routine servicing	x	x	
Minor adjustment, removal and replacement of components and parts (knobs, safety wire, fuses, and light bulbs)	x	x	
Exterior cleaning/preservation, minor corrosion control, and finish touch-up (as required)	x	x	11
Removal/replacement of major component parts, subassemblies, and modules		x	
Repair of components by replacement of parts (tubes, transistors, resistors)		x	
Bench test of components and calibration (using standards provided)		x	
TD compliance		x	
<u>Nonavionic SE</u>			
Preoperation, postoperation, daily inspections, servicing, and daily maintenance per PMRMs	x	x	4
Cleaning/preservation, minor corrosion control, and finish touchup (as required)	x	x	4
Periodic inspections and maintenance using MRCs, MIMs, or Handbook of Maintenance Instructions		x	4, 12
Test and check, fault isolate, adjust, repair, remove, and replace components following MIMs, Handbook of Maintenance Instructions, overhaul instructions, and SM&R code guidelines		x	
Cleaning, preservation, and corrosion control (as required)	x	x	
Minor repair to frames, housings, bodies, fenders, and enclosures, including welding and repainting		x	
Calibration of selected equipment and engine test stands, when standards are provided		x	
Repair of installed SEGTEs		x	5
Repair and test of automotive components, including transmissions, axles, differentials, suspension systems, brake drums and rotors, and replacement or repair of diesel and internal combustion engine components, as well as wheel alignment following MIMs, Handbook of Maintenance Instructions, overhaul instructions, and SM&R code guidelines		x	6
Functional test of engines and accessories on a run-up stand		x	
Hydraulic system contamination control		x	
TD compliance		x	
Hoisting slings and restraining devices classified as SE		x	7
<u>Unmanned Aerial Vehicle</u>			
Servicing	x	x	
Inspection (prelaunch, postlaunch, conditional, acceptance, and initial build up)	x	x	
Inspection PSE (preoperational)	x	x	
Inspection (periodic)	x	x	
Inspection (removed components, bench check, and test required)	x	x	
Removal and replacement of strainers, filters, fasteners, and safety wire	x	x	
Removal and installation of components	x	x	
Functional test and adjustment	x	x	
Repair of components	x	x	
Overhaul of components		x	
TD compliance	x	x	

Figure 3-4: O-Level and I-Level/FRC Maintenance Function Applicability

Maintenance Function Applicable to:	Level O-	I-	Note
<u>Airborne Mine Countermeasures Equipment</u>			
Servicing, functional test, and adjustment	x	x	
Inspection (prelaunch, turnaround, daily, postlaunch, special, conditional)	x	x	
Inspection PSE, SE (preoperational)	x	x	
Removal and installation of components/parts (strainers, filters, fasteners)	x	x	
Inspection, repair, and bench test of components		x	
Replacement of parts requiring component disassembly, special tools, or SE		x	
Repair removed engines by replacement of parts (if applicable)	x	x	
Major repair of removed engines and complete repair		x	
Engine test, including performance evaluation		x	
Preservation and depreservation	x	x	
Cleaning, corrosion control, and prevention	x	x	
TD compliance	x	x	
<u>Aviation Life Support Systems</u>			
Servicing/purging of installed/removed systems/components		x	9
Inspections (daily, turnaround, special, conditional, inventory, phase, acceptance, transfer)	x	x	10
Inspections (bench check, pressure test, visual, functional test, adjustment, calibration of components, and proof load test (rescue sling))		x	
Removal/replacement of systems/components/associated hardware	x	x	10
Repair of removed systems and components		x	11
Machine operations (sewing, searing, embossing/stamping, fabrication, pressing, recharging)	x	x	
TD compliance	x	x	8, 10
Incorporate TDs on removed systems/components		x	
Recovery and processing for emergency reclamation of ALSS components	x	x	8, 10
Repair and processing for emergency reclamation of ALSS components		x	
Corrosion control/treatment (strip, treat, paint, or repaint)	x	x	10, 11
Manufacture of liquid oxygen and nitrogen		x	11
<u>Marine Air Traffic Control and Landing System</u>			
Operational check, test, and routine servicing	x		
Inspections (periodic)	x		
Minor adjustments/alignments	x		
Removal and replacement of components (module, circuit card assemblies, and chassis-mounted piece part)	x	x	13
Removing and replacing subassemblies (as required)		x	
Replacement of consumable parts, such as knobs, safety wire, fuses, and light bulbs		x	
Repair of flexible cables		x	
Removal and installation of special connectors, eyelets, and terminals		x	
Functional test and checks		x	

NOTES

1. Applies to aircraft ALSS, CADs and PADs.
2. NAR is not an authorized medium for directing or authorizing the removal/replacement of installed aircraft or ALSS cartridges/pyrotechnics/CADs/PADs or for affecting aircraft availability. The TD system was established for that purpose. If within three days of receipt of a NAR affecting CADs/PADs/aircraft availability a TD has not been received, the reporting custodian will request assistance from the ACC/TYCOM who in turn will request status from COMNAVAIRSYSCOM (AIR-6.9.2.2).
3. Maintenance level as specified in TDs.
4. When PMRMs do not exist (old or simple equipment), local requirements shall be established.
5. I-level activities assigned first-, second-, and third-degree functions under the Three-Degree Gas Turbine Engine Repair Program for removed SEGTEs shall perform the functions in the APU/SEGTE shop (Work Center 412).
6. Component repair of engines included in the NAVAIR Nonavionic SE QEC Program will be performed per NAVICPINST 4400.75.
7. Inspected, maintained, and tested per NAVAIR 17-1-114.
8. Authorized to provide assistance if function is beyond technical capability of the O-level.
9. Use restricted to those personnel currently qualified/certified/licensed.
10. Applicable to IMAs that have aircraft assigned.
11. Applicable to IMAs that have the assigned responsibility and resources.
12. Deployed units may perform limited I-level maintenance if all the conditions set forth in Chapter 16 pertaining to deployed units and detachments are met.
13. I-level capability per COMNAVAIRSYSCOM-approved SMR codes.

Figure 3-5: O-Level and I-Level/FRC Maintenance Function Applicability (continued)

COMNAVAIRFORINST 4790.2A
15 Feb 2008

Activity	Level		Note	Activity	Level		Note
	O-	I-			O-	I-	
NAS Atlanta	x	x		NAVSTA Mayport	x	x	
NAF Atsugi	x	x	8, 9	NAS Meridian	x	x	
PACMISRANFAC HAWAREA				NAF Misawa	x	x	
Barking Sands	x	x	13	NAVSUPPACT Naples	x		5
NAS Brunswick	x	x		NAS JRB New Orleans	x	x	
NAVAIRWARCENWPNDIV				NAVSTA Norfolk	x	x	
China Lake	x	x		NAS North Island	x	x	
NAS Corpus Christi	x	x	11	NAS Oceana	x	x	
NAVSUPFAC Diego Garcia	x	x	7	NAS Patuxent River	x	x	
NAS JRB Ft Worth	x	x		NAVCOASTSYSSTA			
NAF El Centro	x	x	6	Panama City	x	x	4
NAS Fallon	x	x	4	NAS Pensacola	x	x	
NAVSTA Guantanamo Bay	x	x	6	NAS Point Mugu	x	x	1
NAS Jacksonville	x	x		NAVSTA Roosevelt Roads	x	x	12
NAF Washington DC	x	x		NAVSTA Rota			2
NAS Key West	x	x	6	NAR Santa Clara	x	x	
NAS Keflavik	x	x	12	NAVSUPPACT Souda Bay	x	x	5
NAS Kingsville	x	x		NAS Sigonella	x	x	2, 3, 5, 12
NAVAIRWARCENACDIV				NAS Whidbey Island	x	x	
Lakehurst	x	x	10	NAS JRB Willow Grove	x	x	
NAS Lemoore	x	x		NAS Whiting Field	x	x	

NOTES

Activities not under the management control of COMNAVAIRSYSCOM which have limited I-level support capabilities will be supported as directed/negotiated by type commanders. I-level maintenance performed on equipment on sub-custody to departments, other than the air wing, requires the support of additional personnel from the department having such equipment on subcustody.

1. Naval Base Ventura County provides O-level and I-level maintenance for NAWS and NAVAIRWARCENWPNDIV aircraft; line services for transient aircraft; and I-level support to all tenant activity aircraft. The COMAEWWINGPAC DET AIMD organization is authorized a single department head who exercises control over both the O-level and I-level.
2. NAS Sigonella provides limited I-level support to NASA Rota as authorized by higher authority.
3. NAS Sigonella provides limited flight line support and is authorized to perform limited I-level avionics and structural and composite maintenance functions; full JOAP, NDI, tire and wheel, solid line and flexible hydraulic hose buildup and repair, ALSS, SE functions, and T-56 propeller buildup and repair.
4. Authorized to perform the following limited I-level maintenance functions for assigned/tenant aircraft: tire and wheel buildup, and SE.
5. NAS Sigonella provides limited SE support for line operations at NAVSUPPACT Souda Bay.
6. Authorized to perform limited I-level maintenance functions for assigned/tenant aircraft: tire and wheel build up, selected avionics, and SE.
7. Provides full I-level maintenance support of P-3C aircraft except for power plants and propellers. Hydraulics support limited to functions not requiring testing.
8. Authorized to perform limited I-level maintenance functions on avionics and SE.
9. Provides I-level ALSS maintenance in support of NAVAIRPRA, Atsugi; and provides I-level support for common avionics systems for VQ-1 Det aircraft.
10. Authorized to perform the following I-level maintenance functions for assigned/tenant aircraft: avionics, engine buildup, hydraulic and structural component repair, tire and wheel buildup, ALSS, and SE.
11. NAS Corpus Christi provides O-level maintenance for two NAS SAR UH-1N aircraft; line services for transient aircraft; and limited I-level maintenance functions in calibration, battery support for SE and contractor maintained T-34 aircraft, nonjet ALSS, and SE; and serves as host site for AIMD Truax Field, a LANTFLT I-level activity.
12. Authorized to operate, maintain, and perform limited D-level maintenance functions on oxygen and nitrogen generating equipment.
13. Performs following limited I-level maintenance functions for assigned/tenant aircraft as authorized by higher authority: avionics, engine buildup, hydraulic component repair, wheel and tire buildup, ALSS, and SE.

Figure 3-6: Assigned Levels of Maintenance by Activity, Navy

COMNAVAIRFORINST 4790.2A
15 Feb 2008

Activity	Level		Note	Activity	Level		Note
	O-	I-			O-	I-	
MCAS Beaufort	x	x	4, 5	MCAF Kaneohe Bay	x	x	4, 5
MCAS Cherry Point	x	x	1, 4	MCAS Miramar			2
MCAS Camp Pendleton (Helicopter)			2	MCAS New River (Helicopter)			2
MCAS Futenma	x	x	4, 5	MCAS Yuma	x	x	
MCAS Iwakuni	x	x	4, 5, 6	HMX (Marine Helicopter Squadron One)	x	x	3

NOTES

- 1. The Fleet Readiness Center performs D-level maintenance for the entire aviation maintenance program and furnish related technical services as specified by COMNAVAIRSYSCOM.**
- 2. Provides flight line service for transient aircraft.**
- 3. Authorized limited I-level maintenance.**
- 4. Assigned the following limited I-level maintenance for assigned aircraft: avionics maintenance, engine buildup, tire and wheel buildup, and such other component repair as established in local ICRLs. Provides I-level support for all assigned SE.**
- 5. I-level maintenance for assigned aircraft is established by local agreement. Provide personnel and equipment to accomplish required I-level maintenance for both assigned aircraft and SE when a joint facility is used.**
- 6. Authorized to operate, maintain, and perform limited D-level maintenance functions on oxygen and nitrogen generating equipment.**

Figure 3-7: Assigned Levels of Maintenance, Non-Fleet Marine Forces Activity, Marine Corps

COMNAVAIRFORINST 4790.2A
15 Feb 2008

Activity	Level		Note	Activity	Level		Note
	O-	I-			O-	I-	
CV (Aircraft Carrier)	x	x	1, 2, 3, 5, 6	LPD (Amphibious Transport Dock)	x	x	1, 3, 7, 9
LHA (Amphibious Assault Ship (General Purpose))	x	x	1, 2, 3, 6, 9	ACS (Aviation Capable Ship) less LPD	x		3, 8, 9
MCS (Mine Countermeasures Ship)	x	x	1, 2, 3, 4, 6, 9	LHD (Amphibious Assault Ship)	x	x	1, 2, 3, 6, 9

NOTES

1. I-level maintenance performed on equipment on subcustody to departments, other than the air wing, requires additional support personnel from the department having such equipment on subcustody.
2. CVs, MCSs, LHAs, and LHDs are assigned the following maintenance responsibilities: provide O-level and I-level maintenance facilities for use by embarked aviation units; provide and maintain required custody coded (P and E) items of SE, other than organizational property, for use by embarked aviation units; provide I-level support and O-level maintenance material to embarked aviation units. IMAs are assigned responsibility for O-level maintenance of the ship's assigned aircraft.
3. Transportation vehicles assigned to the ship are not aeronautical in nature so they are not maintained or supported by aviation O-level or I-level maintenance.
4. Command and control ship for surface mine sweepers and all airborne mine countermeasure operations. Support small craft operations and provide O-level/I-level maintenance for mine warfare equipment, helicopters, and associated SE for embarked squadrons, as required by the aviation TYCOM, and adhere to direction from MINEWARCOM.
5. Weapons department and IMAs are assigned I-level support for the test, repair, calibration, and maintenance of air launched guided missiles and associated missile test equipment.
6. CVs, LHAs, MCSs, and LHDs. The following maintenance responsibilities are assigned in support of crash salvage equipment, flight and hangar deck cleaning and maintenance equipment: IMA is responsible for I-level maintenance. For the TAU-2 fire fighting equipment, technical assistance will be provided by the Engineering Department.
7. LPDs provide and maintain items of SE, TAU-2, and AS32P-16 fire fighting equipment in support of embarked aviation units. I-level maintenance is limited to troubleshooting and replacing minor components, for example, starters, switches, belts, tires and wheels, and corrosion control.
8. Wings, groups, squadrons, and detachments will retain or cross deck organizational property at the discretion of the cognizant ACC/TYCOM.
9. Surface TYCOMs are responsible for O-level maintenance and inventory management of SE per directives published by the aviation TYCOM. I-level maintenance is done by IMAs designated by the aviation TYCOM. D-level rework of SE is scheduled through the aviation TYCOM.

Figure 3-8: Assigned Levels of Maintenance, Aviation Ships

**COMNAVAIRFORINST 4790.2A
15 Feb 2008**

Activity	Level		Note	Activity	Level		Note
	O-	I-			O-	I-	
VS (Sea Control Squadron)	x			VP (Patrol Squadron)	x		
VX (Air Development Squadron)	x	x	1	VC (Fleet Composite Squadron)	x	x	1
VQ (Fleet Air Reconnaissance Squadron)	x	x	1	HC (Helicopter Combat Support Squadron)	x		
VF (Fighter Squadron)	x			CVW (Carrier Air Wing)	x		2
VAW (Carrier Airborne Early Warning Squadron)	x			VAQ (Tactical Electronic Warfare Squadron)	x	x	1
VFA (Fighter/Attack Squadron)	x			HSL (Helicopter Anti-submarine Squadron Light)	x		
VR (Fleet Logistics Support Squadron)	x			HM (Helicopter Mine Counter-measures Squadron)	x		1
HS (Helicopter Anti-submarine Squadron)	x			HCS (Helicopter Combat Support)	x	x	1

NOTES

1. Authorized to perform limited I-level maintenance on equipment that is peculiar to the mission of the activity and assigned aircraft as authorized by ACCs and COMNAVAIRSYSCOM. While deployed, HM squadrons and detachments are authorized to perform limited I-level maintenance on airborne mine countermeasures equipment per the applicable Weapons System Planning Document.
2. Wing commanders are responsible for coordinating all O-level maintenance performed on, or in support of, all aircraft assigned to wing squadrons. Particular emphasis is required in areas where the various wing squadrons need the same maintenance facilities.

Figure 3-9: Assigned Levels of Maintenance, Fleet and Squadron Units, Navy

COMNAVAIRFORINST 4790.2A
15 Feb 2008

Activity	Level		Note	Activity	Level		Note
	O-	I-			O-	I-	
MALS (Marine Aviation Logistics Squadron)	x	x	1	VMFAT (Marine Fighter - Attack Training Squadron)	x		
VMFA (Marine Fighter Attack Squadron)	x			VMAT (Marine Attack Training Squadron)	x		
VMFA (AW) (Marine Fighter Attack Squadron (All Weather))	x			HMT (Marine Helicopter Training Squadron)	x		
VMA (Marine Attack Squadron)	x	x	2	VMAQ (Marine Tactical Electronics Warfare Squadron)	x		
HMLA (Marine Light Attack Helicopter Squadron)	x			MWSS (Marine Wing Support Squadron)	x	x	3
HMM (Marine Medium Helicopter Squadron)	x			MACG (Marine Air Control Group)	x	x	4
HMH (Marine Heavy Helicopter Squadron)	x			VMGRT (Marine Aerial Refueler Training Squadron)	x		
VMGR (Marine Aerial Refueler Transport Squadron)	x	x	2				

NOTES

- 1. A MALS is responsible for I-level and O-level maintenance on assigned aircraft and I-level maintenance for supported squadrons. In addition, a MALS is responsible for O-level maintenance generated by I-level maintenance on systems, engines, or equipment for supported squadrons.**
- 2. Authorized to perform limited I-level maintenance on peculiar equipment when independently deployed.**
- 3. Authorized to perform O-level and I-level maintenance on components of the EAF system and meteorological system complex. I-level support beyond the capability of an MWSS will be performed by a designated MALS.**
- 4. MATCDs within the MACG perform O-level and limited I-level maintenance on MATCALs equipment. I-level maintenance beyond their capability and aviation supply/fiscal support is provided by the MALS.**

Figure 3-10: Assigned Levels of Maintenance, Aviation Fleet Marine Forces

COMNAVAIRFORINST 4790.2A
15 Feb 2008

Activity	Level		Note	Activity	Level		Note
	O-	I-			O-	I-	
VT (Training Squadron)	x			NTTC (Naval Technical Training Center) Pensacola	x		
HT (Helicopter Training Squadron)	x			NAR (Naval Air Reserve)	x		
NATTC (Naval Air Technical Training Center) Pensacola	x		1	MARAS (Marine Air Reserve Aviation Squadrons)	x		2
NATTC Det Lakehurst	x						

NOTES

- 1. The aircraft maintenance unit of NATTC, Pensacola, does O-level maintenance on aircraft and SE used for training in support of technical schools. NAS Pensacola performs I-level maintenance on SE that is beyond the capability of NATTC.**
- 2. Marine air reserve aviation squadrons perform O-level maintenance on assigned aircraft during active duty for training periods or cruises and when activated and assigned to fleet control. During regular monthly drill periods, these squadrons do maintenance which varies with training requirements and schedules published by Fourth Marine Air Wing and the parent activities.**

Figure 3-11: Assigned Levels of Maintenance, Naval Air Training and Marine Air Reserve Squadrons and Units

COMNAVAIRFORINST 4790.2A
15 Feb 2008

Activity	Level		Note	Activity	Level		Note
	O-	I-			O-	I-	
Defense Plant Representative Office	x		1	NAVAIRWARCENACDIV Flight			
Commander Naval Forces, Continental				Test and Engineering Group	x		1
Air Defense Command	x		1	Training Device Maintenance Crews	x	x	7
Inspectors of Naval Material	x		1	Activities/Organizations Having			
Naval Weapons Evaluation Facility	x		1, 2	Custody of Bailed/Loaned Aircraft	x		
Naval Air Test Facility				NAS/Fleet Imaging Commands		x	5
(Ship Installation)	x	x	1, 2	Tactical Support Center (TSC)	x	x	6
Naval Attache	x		3	Pacific Missile Range Facilities	x		8
Naval Missions	x		3	Navy Recruiting Command Aircraft	x	x	9
Naval Training Equipment Center	x		1	Training Device, Aircrew (Simu-			
NAVAIRWARCENWPNDIV				lators)		x	10
China Lake	x	x	1, 2				
CENNAVAVNTECHTRAU	x	x	1, 2, 4				

NOTES

1. I-level maintenance support of special activities covered by this note is performed by the IMA on the station/ship from which the special activity operates or the IMA of the station/ship designated by the COMNAVAIRSYSCOM or ACC/TYCOM.
2. May also be authorized to perform limited I-level maintenance on equipment required to support the assigned missions of the activity plus tire and wheel buildup, engine buildup, and avionics maintenance.
3. The ACC/TYCOM shall designate the activity which performs I-level and O-level (periodic inspection) maintenance on assigned aircraft.
4. CENNAVAVNTECHTRAU and training device maintenance crews servicing FMF units are provided I-level maintenance by the IMA supporting those units.
5. Perform limited I-level maintenance/overhaul as assigned in this chapter or higher authority. Management control of Fleet Imaging Commands will not be delegated to the IMA.
6. Authorized to perform I-level maintenance on TSC equipment if supporting IMA capability does not exist.
7. Authorized to perform I-level maintenance on aviation training device unique equipment. FASOTRAGRU at an NAS, will receive support for aircraft common equipment (modified or unmodified) by the NAS IMA where it is located. When located aboard an MCAS, the FASOTRAGRU/DET will be provided support for aircraft common systems or equipment (modified or unmodified) by the nearest MALS supporting that aircraft or equipment.
8. Pacific Missile Range Facility at Barking Sands performs following limited I-level maintenance functions for assigned/tenant aircraft as authorized by higher authority: avionics maintenance (shop), engine buildup, hydraulic component repair, wheel and tire buildup, ALSS, and SE.
9. O-level and I-level maintenance performed on aircraft assigned to naval recruiting districts is performed by individually contracted fixed base operators and conforms to FAA standards using Navy inspection criteria. Aircraft assigned to Navy Recruiting Command Aviation QA Team, Pensacola, FL are maintained by an active duty Work Center 300 that is authorized to perform O- and I-level maintenance per this instruction.
10. A MCAS will be provided support for aircraft systems or equipment (modified or unmodified), that are not training device unique or under contractor operations maintenance support by the nearest MALS supporting that aircraft or equipment.

Figure 3-12: Assigned Levels of Maintenance, Special Activities and Units

NDI CERTIFICATION RECORD	
1. NAME	2. RATE/RANK
3. CERTIFYING ACTIVITY	
4. EFFECTIVE DATE	5. RECERTIFICATION DUE DATE
<p>6. THIS INDIVIDUAL IS CERTIFIED TO CONDUCT NDI BY USE OF THE FOLLOWING METHOD(S):</p> <div style="display: flex; flex-wrap: wrap; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center; width: 45%;"> <input style="width: 30px; height: 20px; margin: 5px 0;" type="checkbox"/> <u>RADIOGRAPHY</u> </div> <div style="text-align: center; width: 45%;"> <input style="width: 30px; height: 20px; margin: 5px 0;" type="checkbox"/> <u>EDDY CURRENT</u> </div> <div style="text-align: center; width: 45%;"> <input style="width: 30px; height: 20px; margin: 5px 0;" type="checkbox"/> <u>LIQUID PENETRANT</u> </div> <div style="text-align: center; width: 45%;"> <input style="width: 30px; height: 20px; margin: 5px 0;" type="checkbox"/> <u>ULTRASONIC</u> </div> <div style="text-align: center; width: 45%;"> <input style="width: 30px; height: 20px; margin: 5px 0;" type="checkbox"/> <u>MAGNETIC PARTICLE</u> </div> <div style="text-align: center; width: 45%;"> <input style="width: 30px; height: 20px; margin: 5px 0;" type="checkbox"/> <u>OTHER</u> <i>(Specify in remarks)</i> </div> </div>	
<p>7. REMARKS:</p>	
8. SIGNATURE <i>(Certifying Official)</i>	9. DATE
<p>Original to: Individual's Qualification/Certification Record</p>	

Figure 3-13: NDI Certification Record (OPNAV 4790/139)

OPNAV 4790/140(2-84) S/N 0107-LF-047-9700

3-98

PRECEDENCE: ROUTINE
FM REPORTING CUSTODIAN
TO COMFRC/FRC/REPAIR ACTIVITY (NEAREST AS APPROPRIATE)
INFO ENDORSING IMA//JJJ//
OTHERS AS APPROPRIATE//JJJ//
BT
UNCLAS //04790//
MSGID/GENADMIN/ACTIVITY//
SUBJ AIRCRAFT PLANNER AND ESTIMATOR INSPECTION REQUEST//
REF/A/DOC/COMNAVAIRFOR/01MAY06//
REF/B/AS APPROPRIATE//
NARR/REF A IS NAVAL AVIATION MAINTENANCE PROGRAM AND REF B AS APPROPRIATE//
RMKS/1. REPORTING CUSTODIAN/ACFT TMS/BUNO/(MISHAP SEVERITY CLASS/MISHAP
CATEGORY/MISHAP SERIAL NUMBER) (DATE OF MISHAP), IF APPLICABLE, NA IF NOT
APPLICABLE).
2. DATE ACFT SUSTAINED DAMAGE OR DATE DEFECT DISCOVERED..
3. COMPLETE DESCRIPTION OF DAMAGE OR DEFECT REQUIRING DEPOT REPAIR OR DEPOT
SERVICES REQUIRED (ASPA/MCI) INCLUDE REFERENCE, APPROPRIATE TECHNICAL
MANUALS; INCLUDE PART NUMBERS, FIGURES, ETC.
NOTE: WHEN REQUESTING ASPA, SPECIFY AS ASPA I, II, III, ETC.
4. CAUSE OF DAMAGE/DEFECT, IF KNOWN.
5. REPAIRS THE UNIT WILL ACCOMPLISH.
6. DATE, TIME, AND PORT OF ARRIVAL OF SHIP (IF EMBARKED).
7. AIRCRAFT LOCATION, FLYABLE/NON-FLYABLE STATUS AND AVAILABILITY OF
AIRCRAFT FOR EXAMINATION.
8. LISTING OF ALL PARTS ON HAND OR ON REQUISITION TO REPAIR AIRCRAFT.
**NOTE: NUMBER 8. SHALL HAVE THE STATEMENT, "PARTS LIST TO FOLLOW" WHEN
PREPARATION OF THE LIST WOULD DELAY THE P&E REPORT.**
9. REMARKS: OTHER DATA AS APPROPRIATE.
10. POC: DSN XXX-XXXX, COMM XXX-XXX-XXXX.
BT

Figure 3-15: Planner and Estimator Request Format

COMNAVAIRFORINST 4790.2A
15 Feb 2008

OPNAVINST 4790.2D

SUPPORT EQUIPMENT TRANSACTION REPORT											
1. PROGRAM INDICATOR <input type="checkbox"/> IMRL <input type="checkbox"/> TOL <input type="checkbox"/> LAMS <input type="checkbox"/> CAL STD <input type="checkbox"/> LOCAL						2. JULIAN DT		3. TR SER NO		4.	
5. REPORTING ACTIVITY						6. RECEIVED FROM/TRANSFERRED TO ACTIVITY					
5a. AAI		5b. ACTIVITY NAME (Short title)				6a. AAI		6b. ACTIVITY NAME (Short title)			
7. QTY		8. TYPE TRANSACTION <input type="checkbox"/> GAIN <input type="checkbox"/> TRANSFER <input type="checkbox"/> SURVEY				9. T/C		10. TOT O/H		11. FSCM	
12. SER NO		13. PART NUMBER				14. NSN				15.	
16. NOMENCLATURE						17. TRANSPORTATION CONTROL NO					
18. ITEM NO		19. RWK CNTRL		20. TEC		21. QTY AUTH		22. LAST TR NO		23. PRINT DT	
24.		25a. FSCM		25b. RE-IDENTIFIED PART NUMBER						25c. TOT O/H	
25. RE-IDENTIFICATION DATA		26a. TYPE		26b. <input type="checkbox"/> ISSUE <input type="checkbox"/> CORRECTION		26c. CAL/PM/RWK ACT		26d. CAL/PM/RWK DUE		26e. QTY	
26. SUBCUSTODY		27a. DATE		27b. TIME		27c. ORG		27d. W/C		27e. STATUS	
27. ISSUE		27f. RECEIVED BY (Signature, Rank/Rate)									
28. RETURN		28a. DATE		28b. TIME		28c. ORG		28d. W/C		28e. STATUS	
		28f. RECEIVED BY (Signature, Rank/Rate)									
29. AUTHORITY/COMMENTS/LOCAL USE											

OPNAV 4790/64 (REV 5-88)

S/N 0107-LF-001-6600

Figure 3-16: Support Equipment Transaction Report (OPNAV 4790/64)

COMNAVAIRFORINST 4790.2A
15 Feb 2008

Block 1	- PROGRAM INDICATOR. Type program allowancing document to which the submittal applies, for example, IMRL and LAMS. Place an "X" in the appropriate box.
Block 2	- JULIAN DT. Julian date TR originated. (5N)
Block 3	- TR SER NO. TR serial number consists of a four digit sequential number. (4N)
Block 4	- Not Used.
Block 5	- REPORTING ACTIVITY
Block 5a	- AAI. AMMRL activity identifier code of the activity submitting the report. (6A/N)
Block 5b	- ACTIVITY NAME (Short Title). Noun name of the activity identified in block 5a. (26A/N)
Block 6	- RECEIVED FROM/TRANSFERRED TO ACTIVITY
Block 6a	- AAI. AMMRL activity identifier code of the activity item being reported is received from or transferred to. (6A/N)
Block 6b	- ACTIVITY NAME (Short Title). Noun name of the activity identified in block 6a. (26 A/N)
Block 7	- QTY. Quantity of items being reported as a gain/transfer/survey/re-identification by this TR. (4N)
Block 8	- TYPE TRANSACTION. Indicate reason for TR submittal. Place an "X" in the appropriate box.
Block 9	- T/C. Transaction code identifying the exact nature of the transaction being reported (see NAVAIRINST 13650.1C (NOTAL) or the appropriate SECA instruction to ensure use of the correct code). (2A)
Block 10	- TOT O/H. Quantity remaining on hand after the adjustment of the quantity reported in block 7. (4N)
Block 11	- FSCM. Manufacturers or CAGE code for the item being reported. (5 A/N)
Block 12	- SER NO. Serial number of the item being reported. (10 A/N)
Block 13	- PART NUMBER. Part number of the item being reported or old part number of the re-identified item. (32 A/N)
Block 14	- NSN. National stock number of the item being reported. (22 A/N)
Block 15	- Not used.
Block 16	- NOMENCLATURE. Noun name of the item being reported. (40 A)
Block 17	- TRANSPORTATION CONTROL NO. Transportation control number (TCN) used when item is shipped to rework. (19 A/N)
Block 18	- ITEM NO. Allowancing document line number of item being reported (IMRL, etc). (4N)
Block 19	- RWK CNTRL. Rework control number assigned by SERMIS. (5 A/N)
Block 20	- TEC. Type Equipment Code. (4 A/N)
Block 21	- QTY AUTH. Authorized allowance of the item being reported (from IMRL). (4 A/N)
Block 22	- LAST TR NO. Last TR serial number for the item being reported. (5N)
Block 23	- PRINT DT. Current allowancing document print date (YYMMDD). (6N)
Block 24	- Not used.
Block 25	- RE-IDENTIFICATION DATA
Block 25a	- FSCM. Manufacturers code for the item being reidentified. (5 A/N)
Block 25b	- RE-IDENTIFIED PART NUMBER. New part number for the reidentification. (4N)
Block 25c	- TOT O/H. Total quantity on hand of the reidentified P/N after reidentification. (4N)
Block 26	- SUBCUSTODY
Block 26a	- TYPE. Enter the code (R for reportable item on IMRL, N for nonreportable item on IMRL, ,or X for item not on IMRL). (1A)
Block 26b	- ISSUE or CORRECTION. Place an "X" in the appropriate box.
Block 26c	- CAL/PM/RWK ACT. Noun name of the activity performing the calibration, PM, or rework. (13 A/N)
Block 26d	- CAL/PM/RWK/DUE. Julian date due at the activity performing calibration, PM, or rework. (4N)
Block 26e	- QTY. Quantity of items subcustodied. (4N)
Block 27	- ISSUE
Block 27a	- DATE. Julian date of issue. (4N)
Block 27b	- TIME. Military time at which the transaction is complete. (4N)
Block 27c	- ORG. Organization code of the individual identified in block 27f. (3 A/N)
Block 27d	- W/C. Work center of the individual identified in block 27f. (3 A/N)
Block 27e	- STATUS. Status code showing the condition of the item being reported. (2/N)
Block 27f	- RECEIVED BY. Signature and rate of the individual accepting the item being issued.
Block 28	- RETURN
Block 28a	- DATE. Julian date of return. (4N)
Block 28b	- TIME. Military time at which the transaction is complete. (4N)
Block 28c	- ORG. Organization code of the individual identified in block 28f. (3 A/N)
Block 28d	- W/C. Work center of the individual identified in block 28f. (3 A/N)
Block 28e	- STATUS. Status code showing the condition of the item being reported. (2A/N)
Block 28f	- RECEIVED BY. Signature and rate of the individual accepting the item being reported.
Block 29	- AUTHORITY/COMMENTS/LOCAL USE. For Authority; Command directive authorizing transaction (SERMIS generated number, reference for letter or memo, DTG of msg, etc). For Comments/Local Use; Comments explaining the transaction or information for use with the VIDS boards. (4 A/N)

NOTE: Left characters in paranthesis at the end of the block explanation, for example (4N), (6A/N), indicate the maximum field length and alpha, numeric, or alpha/numeric data entries.

Figure 3-17: Support Equipment Transaction Report Explanation

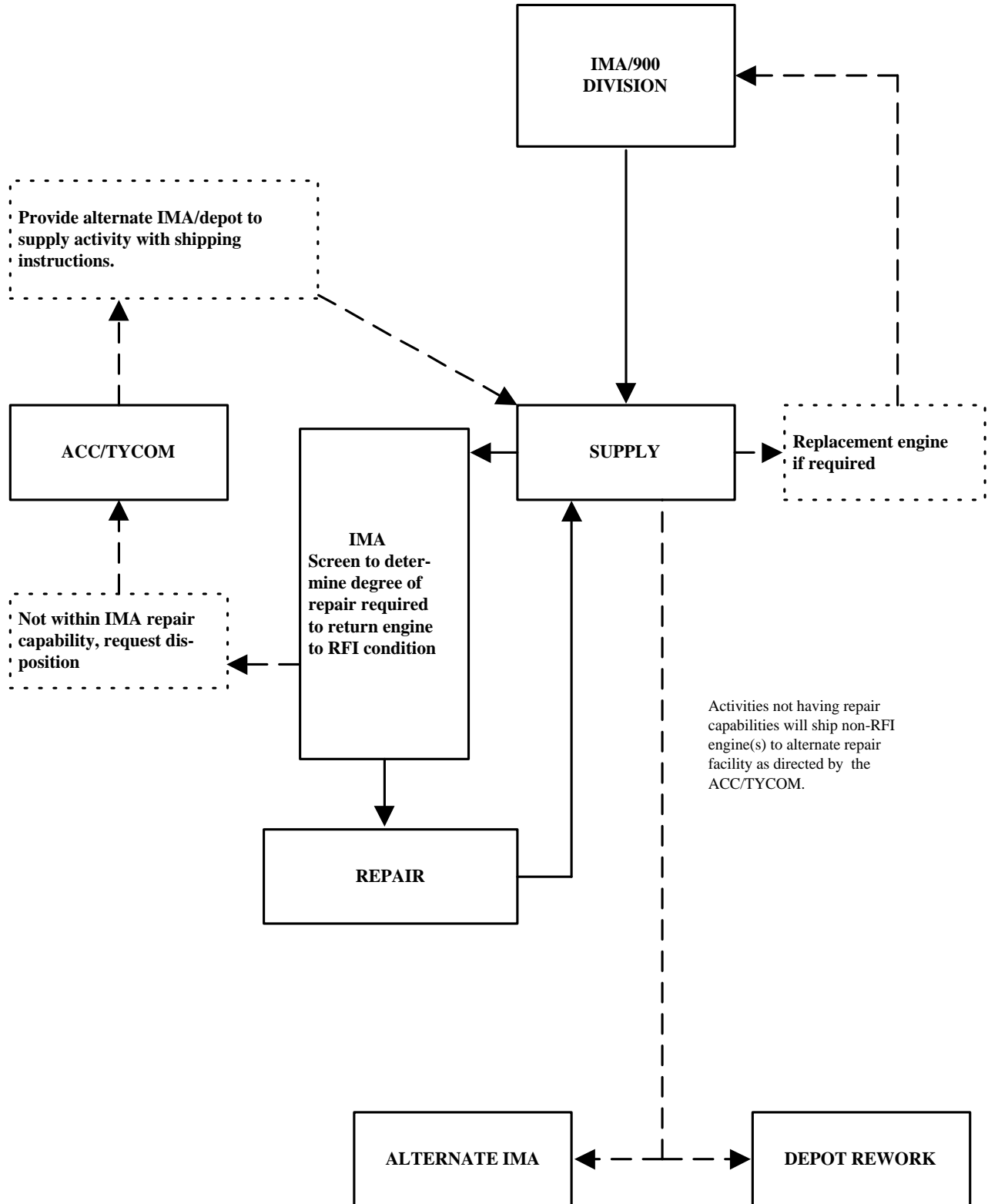


Figure 3-18: Screening Procedures for Non-RFI Engines, APUs, and SEGTEs

**MOBILE FACILITY
MAJOR RELATED EQUIPMENT RECORDS**

GENERAL INSTRUCTIONS

1. **ORIGIN.** Logbook and Inventory Records shall be initiated by the configuration activity. OPNAV Forms 4790/50 and 51 shall be initiated and placed in Part I for the MF shell, air conditioner, frequency converter, generators and running gear if shipped with the MF or MF complex.

2. **CUSTODY.** The MF Logbook and Inventory Record shall accompany the MF at all times and shall be continuously maintained and updated. Any classified information shall be safeguarded in accordance with applicable security regulations. When an MF is transferred, the Logbook and Inventory Record shall be transferred with the MF.

3. **MAINTENANCE.** The Logbook and Inventory Record is maintained similar to an Aircraft Logbook and is in loose-leaf form. The full identification data and serial number shall be inserted on each form in the spaces provided to ensure ready identification when pages are removed for entries or any other reason.

The Logbook and Inventory Record is arranged in two parts. When the MF is transferred, OPNAV Forms 4790/50 and 51 are filed in Part I. These forms must be maintained for the MF shell, running gear, air conditioner, frequency converter and generator. These OPNAV forms are maintained in the GSE shop with the exception of the frequency converter which is maintained in the Avionics shop. Part II contains the records of inventory.

The Logbook and Inventory shall be kept neat and clean; all necessary entries shall be made under the supervision of the cognizant Maintenance Officer. Entries shall be printed in ink or typewritten, except where penciled entries are authorized.

The depot level maintenance activity shall, upon induction of the MF, screen the entire Logbook and Inventory Record for information pertinent to rework or rehabilitation and shall purge all entries not required as a permanent record.

The Logbook and Inventory Record may be used for one MF or a complex of MF's. When records are maintained for a complex of MF's in one binder, it becomes extremely important that the MF or equipment records bear the serial numbers.

4. **DISPOSITION.** The Logbook and Inventory Record for MF's stricken from the NAVY/MARCORPS list shall be disposed of in accordance with the following procedures:

a. **DESTROYED MF** - The Logbook and Inventory Record shall be disposed of locally after necessary investigation and preparation of required reports and PROVIDED the MF's are not in any of the following categories:

(1) **SPECIAL CATEGORIES** - The following Logbooks and Inventory Records shall be forwarded to the Director, Washington National Records Center, General Services Administration, Washington, D.C. 20409:

(a) Logbooks and Inventory Records considered to be of historical value.

(b) Logs and records of MF's and/or equipment which have been involved in an accident(s) resulting in death and/or injury to any person; and/or substantial damage to other than Government property, shall be retained for a period of one year by the operating activity (for defense to litigation action) and then forwarded to the Director, Washington National Records Center, General Services Administration, Washington, D.C. 20409.

5. **SIGNATURES.** All signatures required in the MF Logbook and Inventory Record and in associated forms and records shall be the personal signature of the person designated by cognizant Commanding Officers for this purpose. All signatures shall be written. Rubber stamp signatures are not authorized. This requirement is waived when a new MF Logbook and Inventory Record is initiated, or when old MF Logbooks and Inventory Records are consolidated.

GENERAL
INSTRUCTIONS

OPNAV FORM 4790/62 (5 - 73)

Figure 3-19: Mobile Facility Logbook and Inventory Record - General Instructions (OPNAV 4790/62)

MOBILE FACILITY
MAJOR RELATED EQUIPMENT RECORDS

PART I

TABLE OF CONTENTS

Title	OPNAV Form No.
Ground Support Equipment Sub-Custody and Periodic Maintenance Record	4790/50
Ground Support Equipment Custody and Maintenance Record	4790/51

NOTE: OPNAV Forms 4790/50 and 4790/51 are filed in this section.
These forms are to be maintained for the MF major related equipments and are defined in NAVAIRINST 13850.2.

OPNAV Form No. 4790/63 (5-73)

PART I
MF RECORDS

Figure 3-20: Mobile Facility Major Related Equipment Records - Table of Contents, Part I (OPNAV 4790/63)

MOBILE FACILITY INVENTORY RECORDS		PART II
TABLE OF CONTENTS		
Title		OPNAV Form No.
Inventory Record and Equipment List Separator	_____	4790/73
Inventory Record and Equipment List Form	_____	4790/73A
Record of Shortages Separator	_____	4790/75
Inventory Record of Shortages Form	_____	4790/75A

PART II
INVENTORY

OPNAV FORM 4790/74 (5-73)

Figure 3-21: Mobile Facility Inventory Records - Table of Contents, Part II (OPNAV 4790/74)

COMNAVAIRFORINST 4790.2A
15 Feb 2008

WORK REQUEST CUSTOMER SERVICE

OPNAV 4790/36A (REV. 2-01) S/N 0107-LF-983-6600

PART I: TO BE COMPLETED BY IMA (INTERMEDIATE MAINTENANCE ACTIVITY)

1. DATE		2. JCN		3. ISSUE DOCUMENT NUMBER	
4. PART NUMBER		5. PART SERIAL NUMBER		6. MANUFACTURE CODE	
7. NOMENCLATURE		8. NATIONAL STOCK NUMBER		9. QUANTITY	
10. TYPE AIRCRAFT/EQUIPMENT		11. BU/SER NUMBER		12. CATEGORY	
<div><input type="checkbox"/> NORS</div> <div><input type="checkbox"/> NFE</div> <div><input type="checkbox"/> WORK STOPPAGE</div> <div><input type="checkbox"/> OTHER</div>					

13. WORK REQUESTED: JUSTIFICATION FOR WORK REQUESTED.

(Attach amplifying instructions if required.)

14. CERTIFICATION: I CERTIFY THAT THIS WORK IS BEYOND THE CAPABILITY OF IMA.
SIGNATURE

DATE

15. FOR FURTHER INFORMATION CONTACT-

(Activity and telephone number)

16. REQUIRED COMPLETION DATE

AUTHORIZED BY

PART II: TO BE COMPLETED BY SSC (SUPPLY SUPPORT CENTER)

18.

☐ LOCAL AREA
AVAILABILITY CHECKED

☐ SUPPLY AVAIL-
ABILITY CHECKED

☐ REQUIREMENT SATISFIED
FROM ABOVE SOURCES

☐ REQUIREMENT FORWARDED
TO NADEP FOR ACTION

SIGNATURE

DATE

19. CERTIFICATION/APPROVAL: I CERTIFY THAT THIS REQUIREMENT CANNOT BE SATISFIED FROM OTHER SOURCES

SIGNATURE (Supervisor)

DATE

PART III: TO BE COMPLETED BY NADEP (NAVAL AVIATION DEPOT)

20. RECEIVED BY		20a. DATE		20b. PCN/WORK ORDER		20c. PRIORITY		20d. DATE WORK STARTED	
21. ACTION TAKEN									
22a. COMPLETED BY		22b. DATE		22c. INSPECTED BY		22d. SUPERVISOR		22e. MAN-HOURS	
22f. EMT		23. SUPPORTED ACTIVITY NOTIFIED THAT WORK HAS BEEN COMPLETED BY		PERSON NOTIFIED		DATE		TIME	
CHARGE TO FAN		24. DISPOSITION		<input type="checkbox"/> WORK COMPLETED		<input type="checkbox"/> F/J UNIT PROVIDED		<input type="checkbox"/> SUPPORTED ACTIVITY NOTIFIED TO ORDER FROM SUPPLY (Explain in Remarks)	
25. RECEIVED FROM SUPPORTING ACTIVITY: BY						DATE		TIME	
26. REMARKS:									
27.		27a. REASON (If work disapproved)				27b. SIGNATURE (Supporting Activity)			
<input type="checkbox"/> APPROVED									
<input type="checkbox"/> DISAPPROVED									

Figure 3-24: Work Request Customer Service (OPNAV 4790/36A)

COMNAVAIRFORINST 4790.2A
15 Feb 2008

OPNAVINST 4790.2J

TAXI TURNUP/APU LICENSE			
PART I - REQUEST			
1. NAME-LAST, FIRST, MIDDLE INITIAL		2. RATE/GRADE	3. DEPARTMENT/DIVISION
4. AIRCRAFT TYPE/MODEL/SERIES	5. UNIT		6a. TYPE OF LICENSE 6b. HIGH/LOW POWER
7a. DATE OF WRITTEN EXAM(S)	7b. RESULTS	8a. ADMINISTERED BY (PRINT)	8b. SIGNATURE
9a. DATE OF OPERATIONAL EXAM	9b. RESULTS	10a. ADMINISTERED BY (PRINT)	10b. SIGNATURE
PART II - CERTIFICATION			
I certify that I understand my responsibilities as set forth in the current Wing/MAG/MALS instructions, applicable NATOPs manual and the OPNAV Instruction 4790.2.			
11a. SIGNATURE OF MEMBER			11b. DATE
I certify this member has completed all training and testing requirements and recommend approval.			
12a. SIGNATURE OF MAINTENANCE OFFICER			12b. DATE
PART III - APPROVING OFFICIAL ACTION			
Member in part I is authorized to perform Taxi/Engine/APU Turnups as indicated for a period of one year from this date unless suspended/revoked by approving official.			
13a. SIGNATURE OF COMMANDING OFFICER			13b. DATE
ORIGINAL TO QUAL/CERT RECORD			

OPNAV 4790/162 (APR 02)

Figure 3-25: Taxi/Turnup/APU License (OPNAV 4790/162)

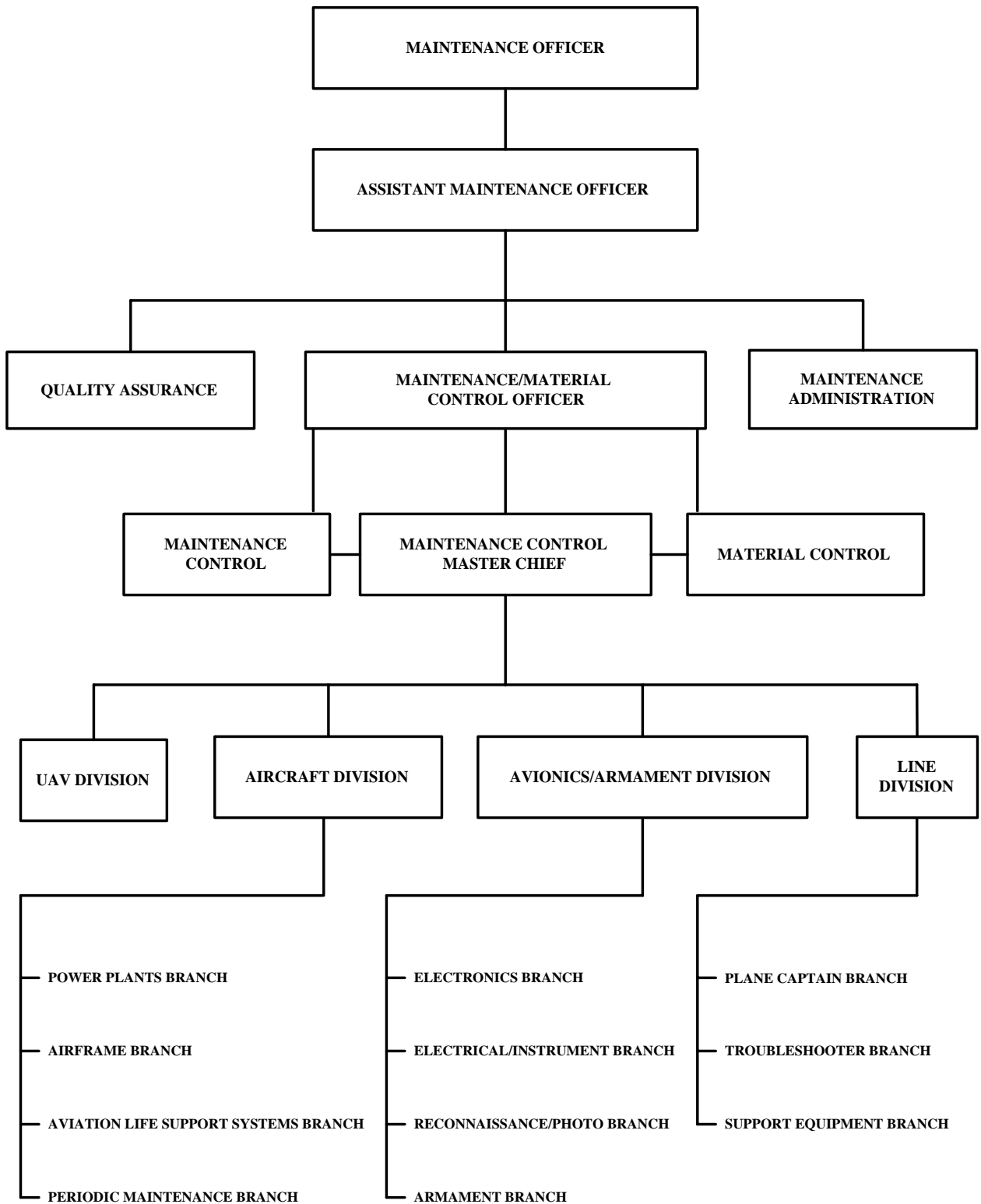
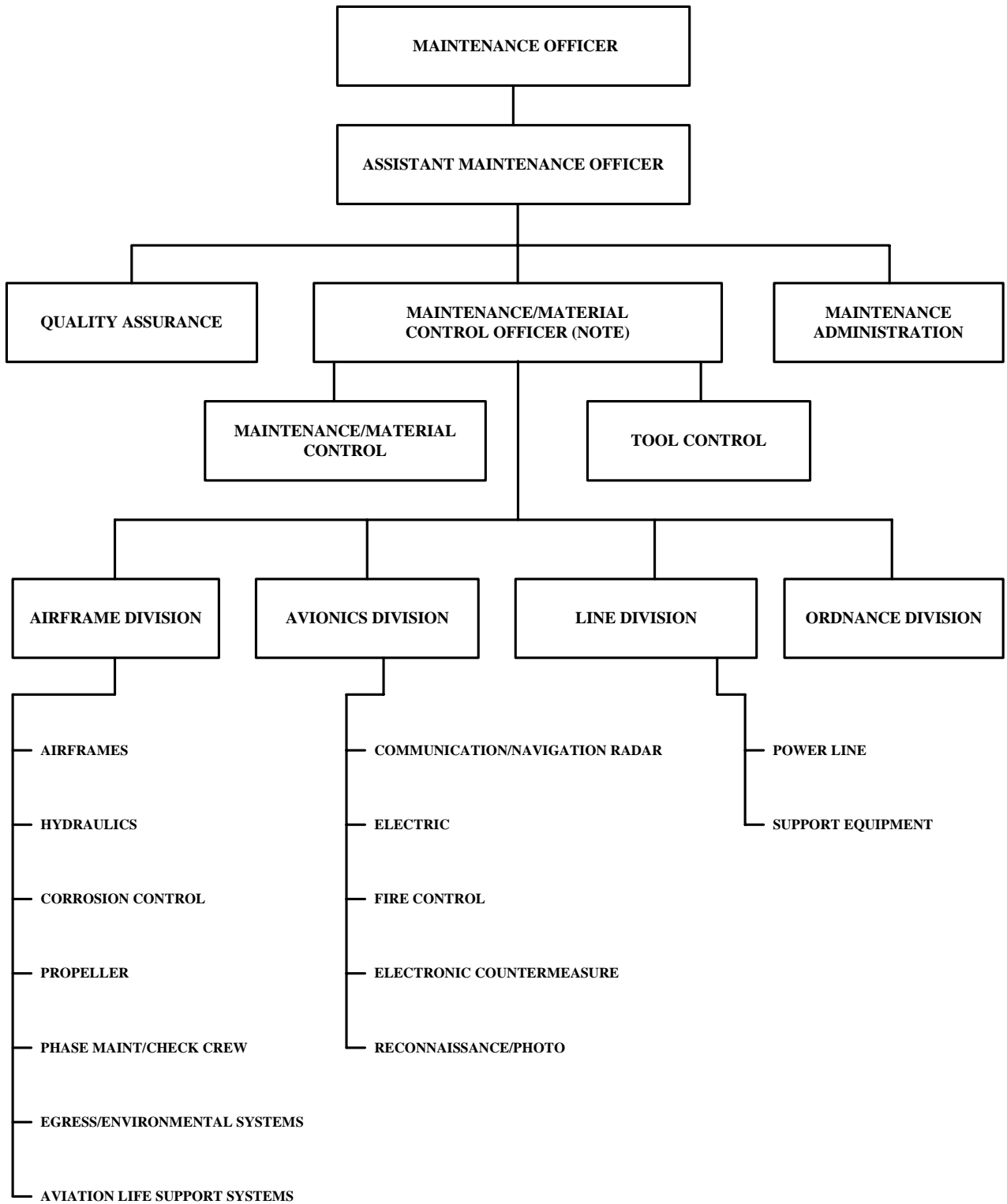


Figure 3-26: O-Level Maintenance Department Line and Staff Relationships (Navy)



NOTE: Maintenance military occupational specialty required.

Figure 3-27: O-Level Maintenance Department Line and Staff Relationships (Marine Corps)

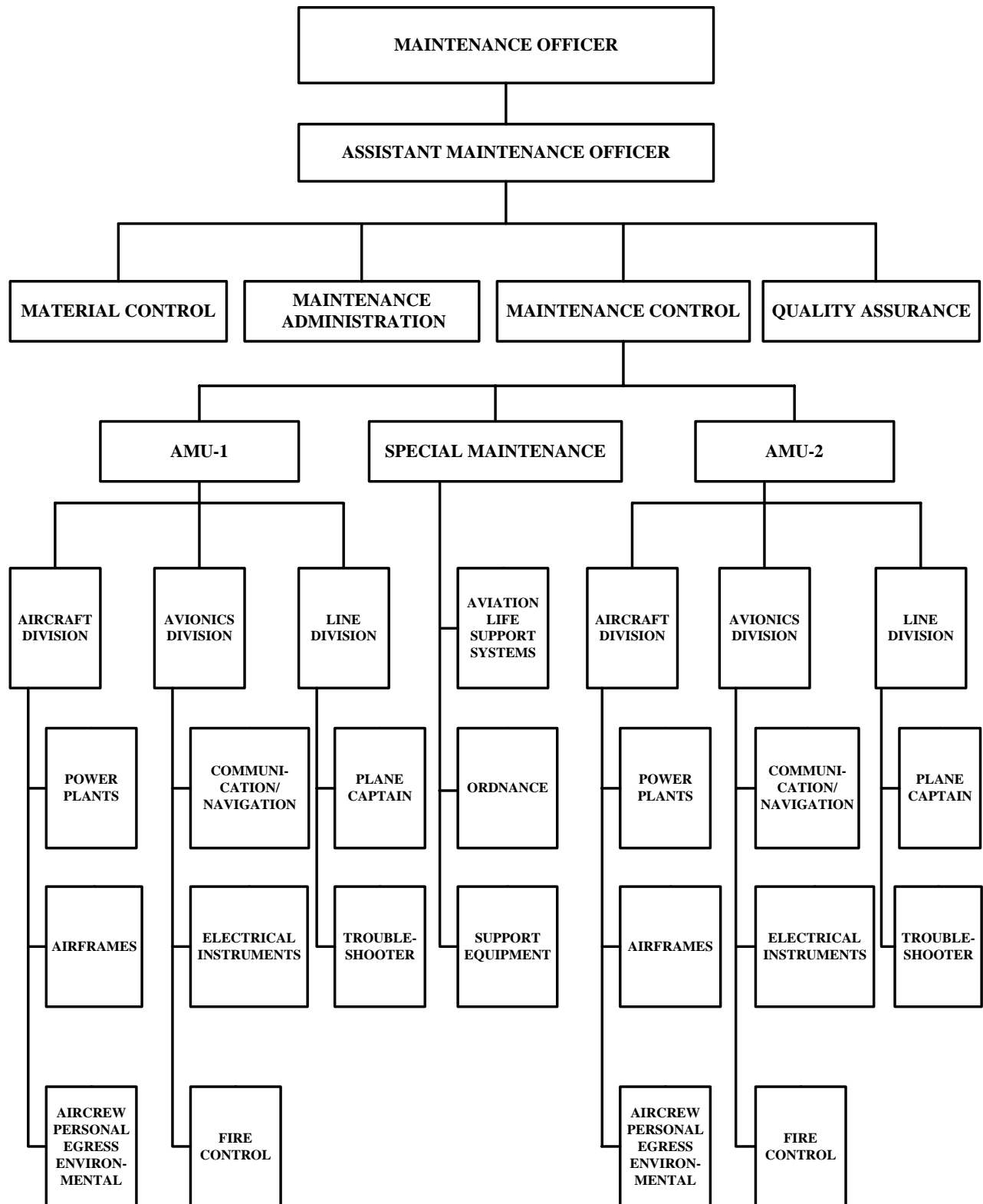
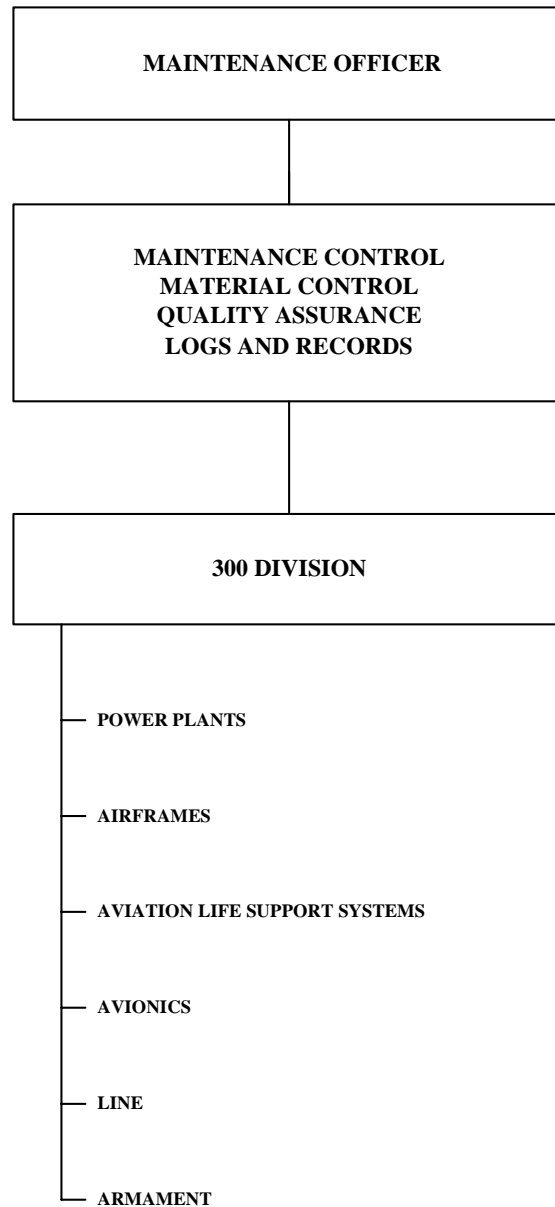


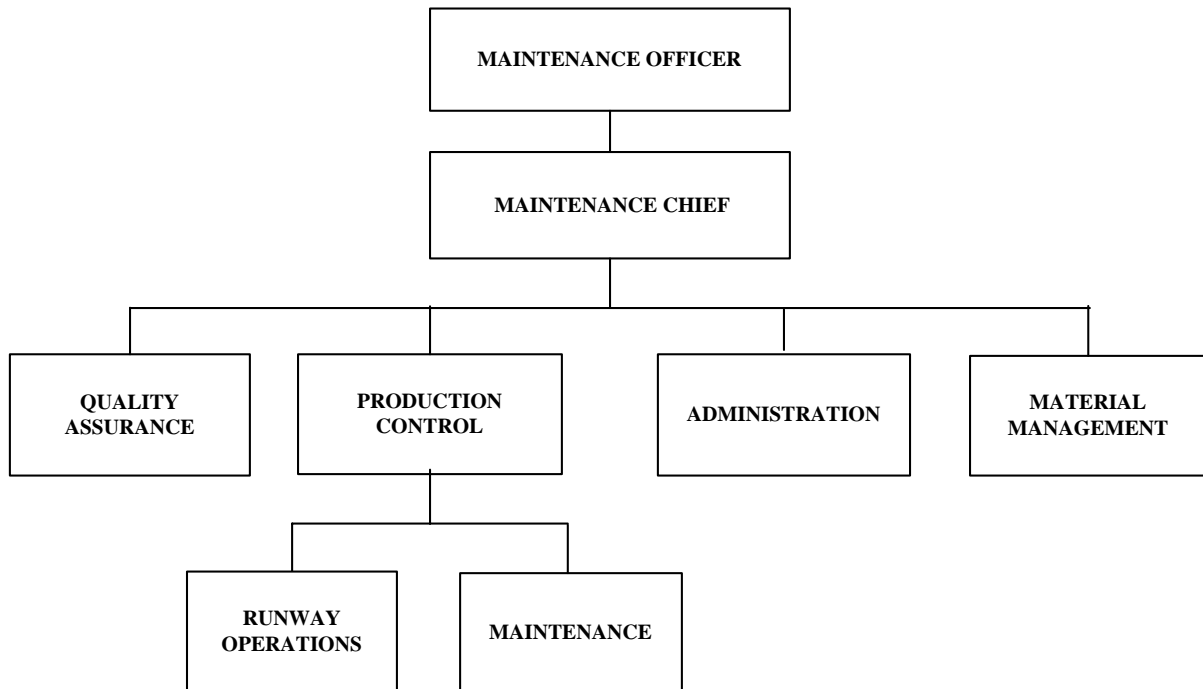
Figure 3-28: O-Level Autonomous Maintenance Unit Concept Line and Staff Relationships



NOTES

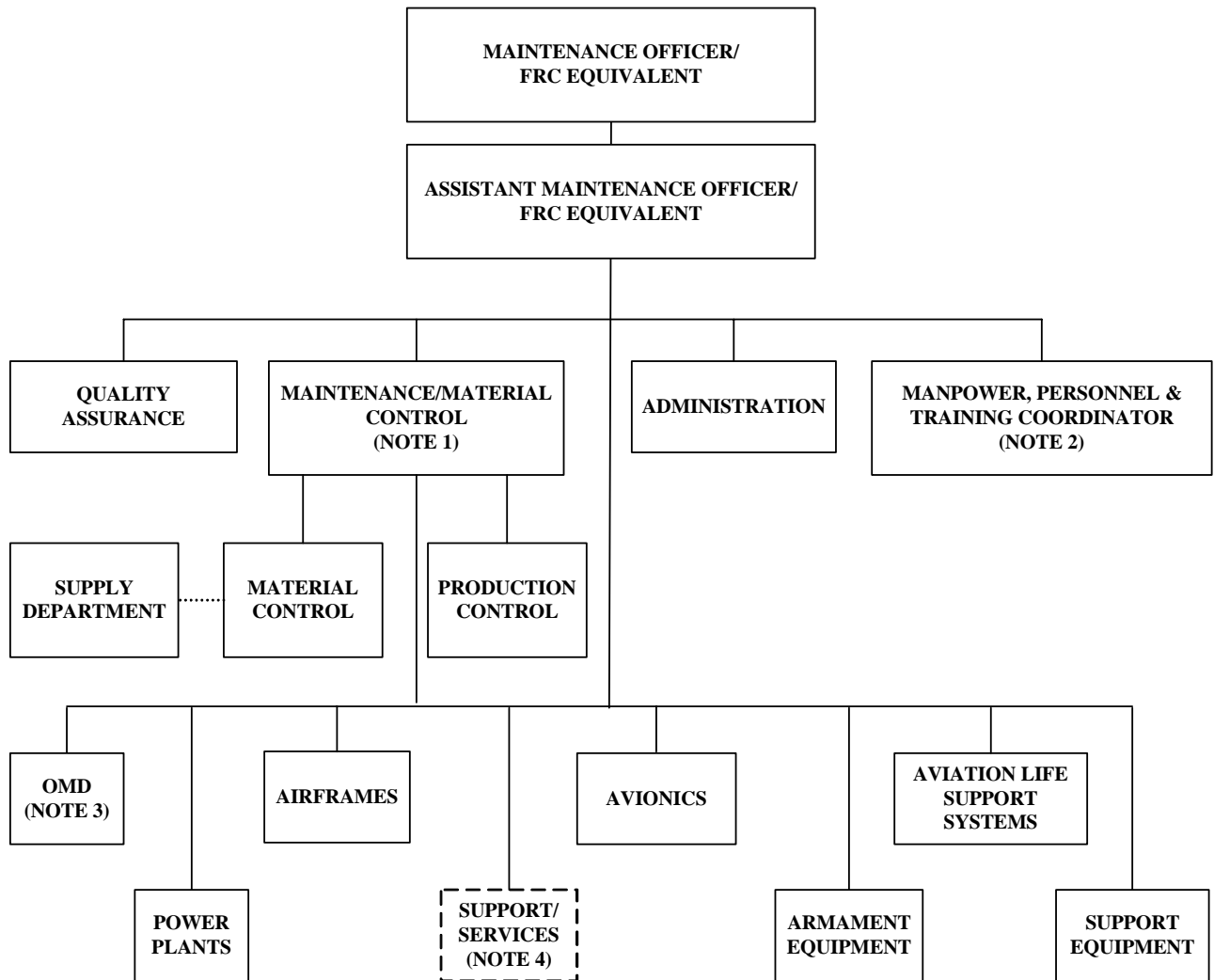
1. Production branch sections may be segregated as indicated; or, if total personnel number less than 100, may be combined within one branch.
2. Staff functions, for example, Maintenance Control, Material Control, or Quality Assurance, may be combined to more efficiently use staff personnel.
3. This organization structure is not applicable to squadrons or OMDs whose manning document or Table of Organization provides for QA division manning per Chapter 7. The organization structure of Figures 3-26, 3-27, and Chapter 7 applies to such activities.
4. If operating with VIDS, analysis remains a function of QA.

Figure 3-29: OMD Line and Staff Relationships with Four or Less Aircraft



Breakdowns beyond the basic divisions are not illustrated because of the variety of branches possible. Activities shall establish the necessary branches to meet their individual requirements.

Figure 3-30: O-Level Maintenance Department Organization (EAF)

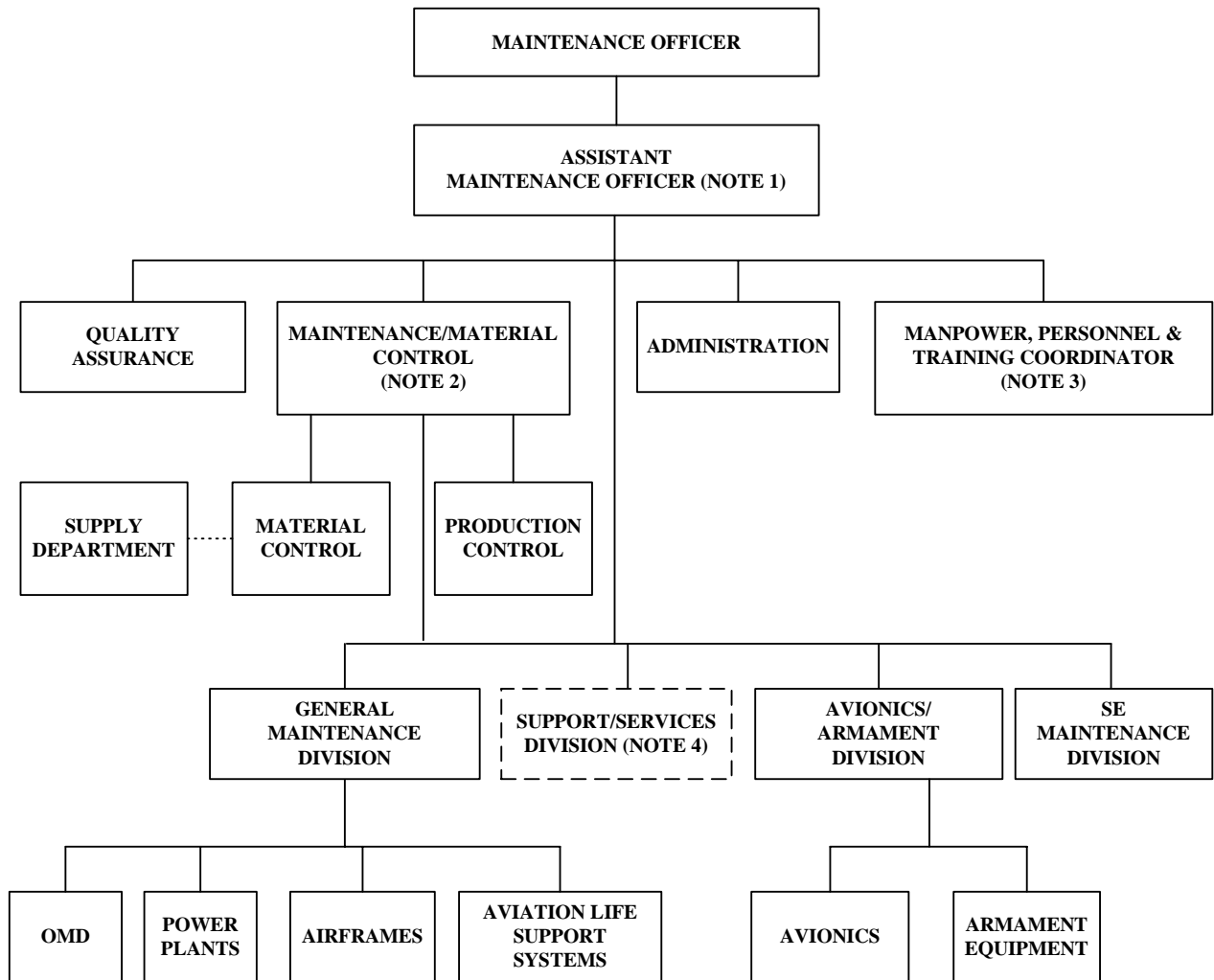


Breakdowns beyond the basic divisions are not illustrated because of the variety of branches possible. Activities will be required to establish the necessary branches to meet their individual requirements. Branches should be established only when more than one work center is involved, for example, Jet Engine Branch with work center J52 engine.

NOTES

1. Direct authority for production matters only.
2. For larger IMAs tht have more than 500 personnel (including TAD personnel). This position is not required for IMAs with less than 500 personnel.
3. When specific authority has been granted to combine the OMD and IMA, an organizational maintenance division will be established.
4. This is an optional division. Support services may include IMRLand other functions as determined by the MO.

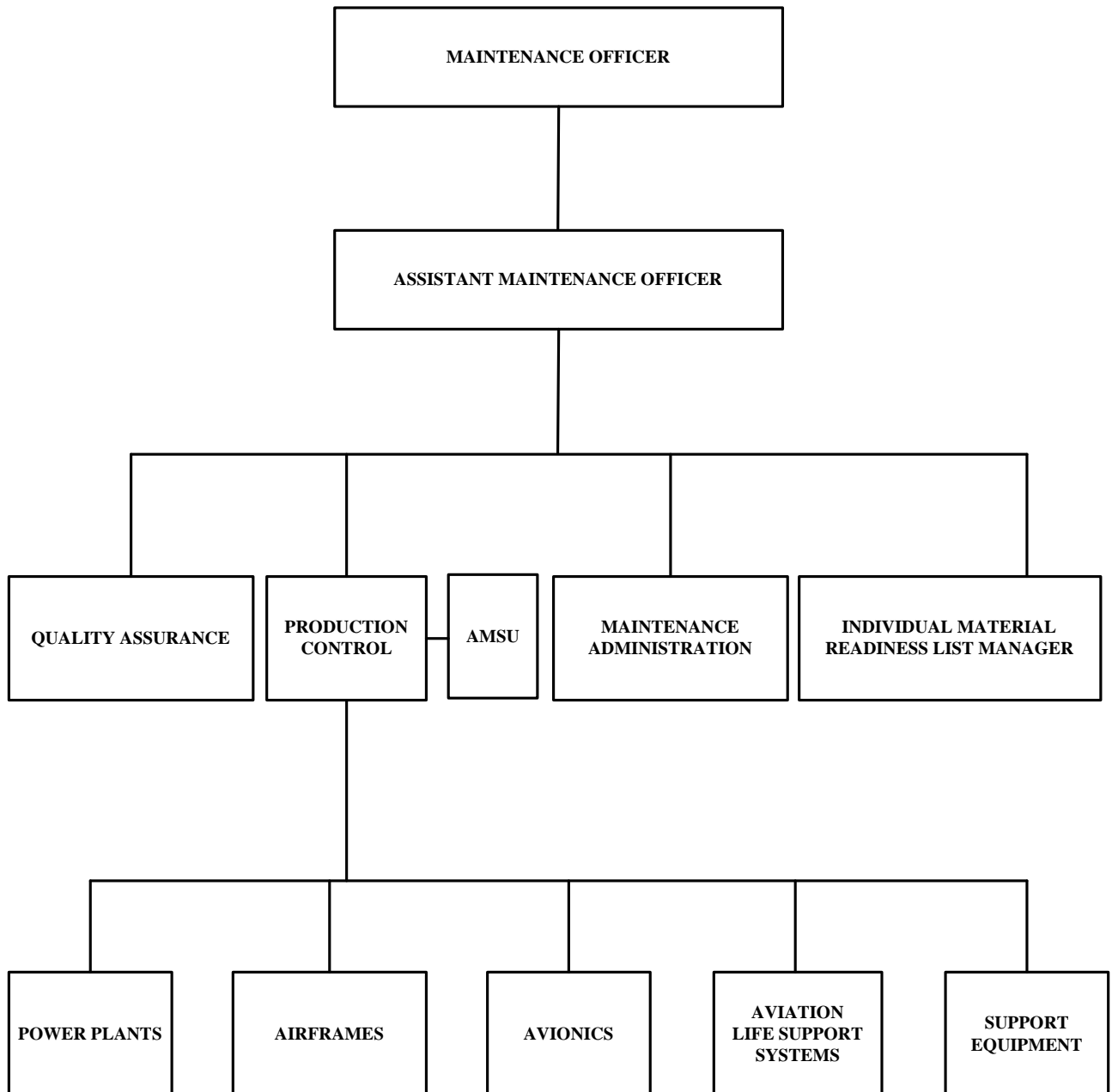
Figure 3-31: IMA/FRC Site Organization (Ashore)



NOTES

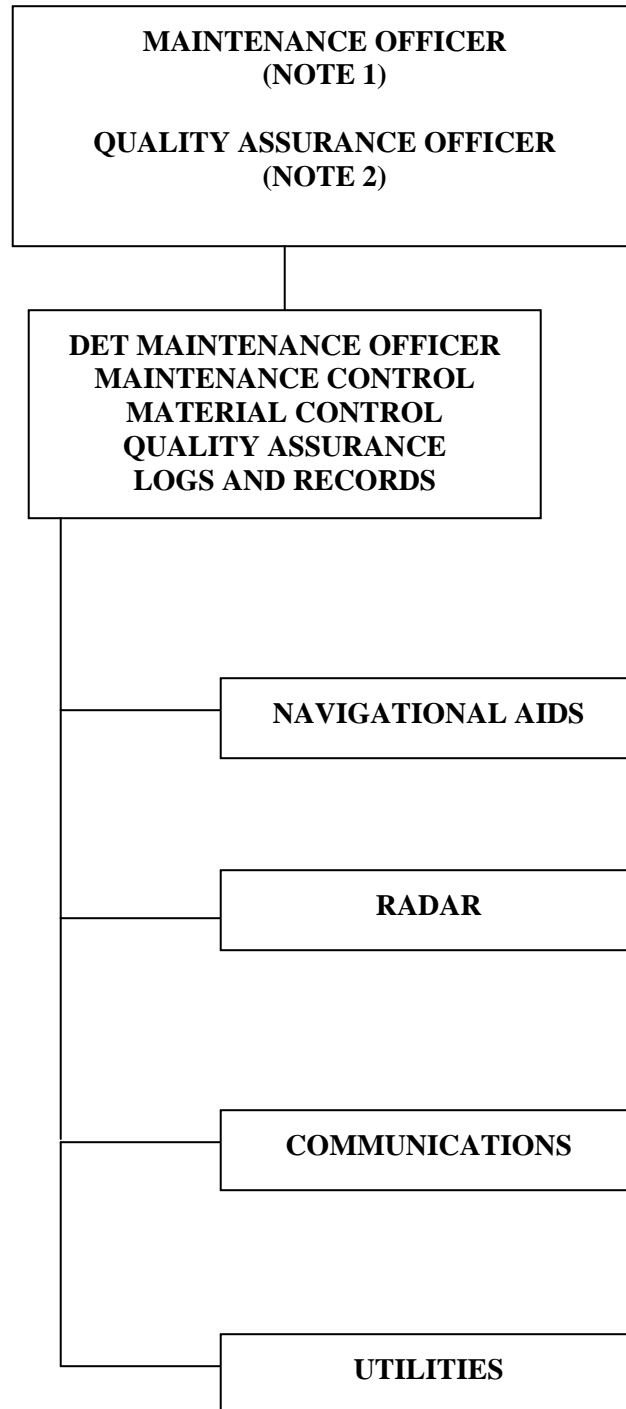
1. This organization chart may be authorized by cognizant TYCOM for certain shore activities with limited manpower allowances.
2. Direct authority for production matters only.
3. Authorized for CVs and ashore IMAs larger than 500 personnel.
4. This is an optional division authorized for CVs only. Support services may include IMRL, damage control, and other functions as determined by the MO.

Figure 3-32: I-Level Maintenance Department Organization (Afloat)



Breakdowns beyond the basic divisions are not illustrated because of the variety of branches possible. Activities will be required to establish the necessary branches to meet their individual requirements. Branches should be established only when more than one work center is involved, for example, Jet Engine Branch with Work Center J52 engine.

R} Figure 3-33: I-Level Maintenance Department Organization (Marine Corps)



NOTES: 1. Function of the MACS S-6 Officer
2. Function of the MACS S-6 Chief

Figure 3-34: O-Level Marine Air Traffic Control Detachment Organization